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THE HIGH SCHOOL OF THE FUTURE.

At the autumn meeting of the affiliated and co-operating schools of the University of Chicago, the main subject for discussion was the general reorganization of our system of education whereby there may be an elementary school of six grades followed by a secondary school of six grades. The situation was outlined by President W. R. Harper in the form of a proposition:

A PROPOSITION.

1. To connect the work of the eighth grade of the elementary school with that of the secondary school.

2. To extend the work of the secondary school to include the first two years of college work.

3. To reduce the work of the seven years thus grouped together to six years.

4. To make it possible for the best class of students to do the work in five years.

Such a plan would fit in with:

1. The necessity, so widely recognized, of lifting the standard for admission to the professional schools.

2. The general feeling that in some way or other time must be saved in the preliminary stages of educational work in order that men and women may enter upon their life-work at an earlier age.

3. The practice, recognized in other countries, of drawing a sharp line between the work of the *gymnasium* or *lycée* and that of the university.

4. The practice, now in common vogue, of making the first two years of college work only an extension of the work in the secondary school.

5. The contention, which seems to be well founded, that much of the secondary work of today was college work thirty years ago.

6. The tendency, already manifesting itself in some quarters, in accordance with which high schools are offering postgraduate work, and universities are accepting this work in lieu of the work of the first two years.

7. The principle that the line of separation at the close of the second college year is much more clearly marked, pedagogically, than the line at the close of the present high-school period.

8. The tendency, everywhere apparent, to extend the scope of the educational work offered by the state or municipality.

9. The tendency, already beginning to be noticed, among smaller colleges to limit the work offered to that of the preparatory school and the first two years of college.

10. The opinion, not infrequently expressed, that the work of the eighth grade is in some measure superfluous for certain classes of pupils, and in some measure injurious to certain other classes.

11. The belief, more and more generally accepted, that the work of the school must be adapted to the needs and possibilities of the individual pupil, rather than that pupils should be treated in mass.

12. The principle that a pupil giving evidence of ability to do the highest grade of work may profitably be excused from doing the same amount of work required of the pupil of lower grade.

In opposition to such a plan there may be suggested:

1. The inclination to regard any system actually in use as better than a system or policy still to be tested.

2. The feeling that the reduction of time can be gained only by a loss of thoroughness.

3. The general lack of interest in any proposition to substitute a well-ordered educational system for the present lack of system.

4. The difficulties involved in adjusting the lower work to the higher, on the ground that the great mass of pupils receive only the lower, and that the public-school system is intended primarily for them.

5. The belief that the state has already gone too far in providing public education of a high character.

6. The opinion that the present college policy, although it is the result of a gradual development, has now reached a position which it must always occupy.

7. The fear that the college idea would be injured by the rivalry of the new high-school colleges.

8. The desire to see specialism begin at a very early age.

9. The hesitation with which many would regard the transfer of the eighth grade from the realm of elementary to that of secondary work.

10. The failure, even in these times, to accept the doctrine of individualism in the field of pedagogical work.

It is recommended, That this conference establish three committees of seven each, to consider the general problem which has been presented at this

meeting of the conference; the first committee, from the point of the elementary work, the second, from the point of view of the secondary school, and the third, from the point of view of the college; these three committees to form a joint committee of twenty-one, and to report at a special meeting of the conference to be held in the month of April, 1903, or at the seventeenth annual conference to be held in November, 1903; with the understanding that the sum of $500 shall be placed at the disposal of each committee, to be used in defraying the expense connected with the work of the committee.

SHORTENING THE YEARS OF ELEMENTARY SCHOOLING.

WHEN a measured educational task is allotted to any school, or to any class of institutions, it is a frequent occurrence that the teacher finds the allotted time to be rather short. The common-school teachers, as a rule, when questioned as to whether or not, in any given year of a course of instruction, they have more time than they can profitably employ, answer in the negative. If the high schools that receive their students from the common schools were asked whether the students are so well prepared that a shortening of the time of preparation is feasible, they would probably dwell on the shortcomings of the preparation as it is. The same is true in regard to the efficiency of the high-school preparation when judged from the college standpoint. There seems to be a contradiction between the cry for a more thorough common-school preparation and the demand involved in various plans which have been the subject of recent discussions for a shortening of the time of the common school. It is only when we look upon the several steps of a complete scholastic education that the need of reconstruction or reformation of the course becomes evident. The common school, the high school, the college, and the university are the links of a long educational chain. Looking upon the years of life required to pass through these institutions, and to finish the complete course of training which they offer, there seems to be some danger that education, instead of being purely a preparation for life, will encroach upon the time and functions of life itself. A peculiarly inappropriate and sinister significance is given to the abused watchword "Education is Life," by extending schooling to an age which leaves but a little span of time to life itself. Where a professional education is to follow the preparatory common-school, high-school and college education, the years of early manhood are taken up, not with life-work, but with school work. Participation in the real life and in the serious duties of

a vocation are postponed. The years of dependence are lengthened, and the moment deferred when the youth shall stand self-reliant in the place which he has found for himself in the great army that is doing the world's work. The experiences of actual life are so essential for the training of manhood that their omission and the substitution therefor of scholastic training is a question which should be carefully considered. Activity in the world, co-operation and competition with other workers, contain educational influences as potent and essential as the training given by high schools. The boy of sixteen who enters some vocation in shop or counting-room, after a period of elementary schooling, becomes within the eight years following a man and a self-poised social unit through the educational forces of life brought to bear upon him. The other, more fortunate boy, who goes to college and enjoys the advantage of fuller education continues necessarily a relation of dependence. He relies on others for support. The feeling of responsibility, and the whole seriousness in the conduct of life which every vocation exacts from its votaries, are a training which the college boy does not receive as early as his less favored brother. Such training is deferred in his case until his education is completed, whose fuller scope is designed to fit him for more responsible duties when he enters life. It is evidently a matter of great public interest to see that the college-bred youth should enter upon his professional and more responsible career at a time of life that is not inordinately late; that the period of tutelage is not unduly prolonged, and that he shall assume the responsibilities of manhood when he has attained the age of manhood. When the Goths, in the later history of the Roman empire, had overrun Italy, and taken a permanent possession, they established civic institutions and promoted schools. But they would not let their own sons attend them, because they feared that the boy who had trembled under the rod of the schoolmaster, would become unfitted for his career as a warrior. While this, of course, is a barbarian's view, there is nevertheless an element of truth in the idea that the prolongation of school life beyond the proper limit is a matter which must be judged, not merely in regard to the edu-

cation which the youth receives, but also in regard to the education of which he is deprived.

College time has encroached very gradually, but very steadily, on lifetime. Longfellow graduated from Bowdoin at eighteen, and was professor of modern languages at twenty-two; Webster graduated from Dartmouth at nineteen; Bancroft from Harvard at seventeen; Emerson graduated from Harvard at eighteen. These illustrations give evidence of the change brought about in the course of years through the evolution of colleges and universities, and the increased demands which they make upon the students. It is easy to see the necessity for a readjustment of the complete educational career so that it may be possible for the student to finish his college and professional education soon enough to enter some vocation in early manhood. A further reason for the early completion of the college course is found in the greater demands made upon the professional education which follows the college and the amount of time that is necessary for specializing in any direction.

The readjustment sought by the plan which this association has proposed for discussion consists in relegating to the high school two years of college study, on the one hand, and the addition to it of the last two years of the common- school curriculum, on the other. To the present four-years' course in the high school two years' college work is to be added from above, and two years' common-school course from below, representing, according to the present standard, eight years' work, for which it is planned to allow six years' time. The means of making this feasible, consists, it is suggested, in the "condensation" of the present program. The idea of condensation is applied in the proposed plan not only to the high school, but also to the elementary schools. They are to have a six-years' course instead of an eight-years' course, and the work is to be reduced by a "condensation" of the existing programs.

I am afraid that the term "condensation" may lead at the very outset to some misapprehension in regard to how such a change, if made at all, can be brought about. Condensation would seem to mean that the same quantity of subject-matter of

instruction should be packed more closely together in regard to time. From my own point of view, if there is any change in the duration of the course to be made, it cannot be made by condensation exclusively, but must largely be brought about by selection and omission. If the idea connected with the proposed plan is that all the matter that has been taught in an eight-years' course can be taught in a six-years' course, by packing it closer in regard to time, or by condensation, the result will be an overburdening of the child by a high-pressure system on one hand, and "cramming" on the other. While there might be a so-called gain in time, there would be an educational loss by which no class of institutions would profit.

The view underlying the whole plan of readjustment is certainly in one respect commendable, and involves a principle which all thoughtful educators believe, namely, that all educational interests are allied, and educational plans for any school should be viewed from the standpoint of education as a totality. A system of common schools must bear in mind the high school and the college, and *vice versa*. In the education bill that is at present agitating Great Britain, a fine phrase occurs which speaks of the "correlation of all the forms of education." The solidarity of educational interests is one of the cornerstones of the modern schoolman's creed. The university, which has done so much to vivify, lift, and strengthen both high-school and elementary-school education, and which is justly stepping into a position of leadership in all educational matters, has the same obligation to regard the welfare of elementary or high schools as the elementary school and the high school have in turn to consider in their teaching, and programs, and appointments, the cause of higher education. Education as a totality should be borne in mind whenever a change in plans or administrative features of any of the forms of education is under discussion.

There is, however, a still wider totality than that formed by all the educational institutions in their entirety. School and life form a greater unit, and any adjustment on the basis of joint school interests alone would be incomplete without taking into consideration the interests of life and the life-relations of school.

The elementary school is not only connected through the high school with the college, but more directly with life itself. The number of pupils that prepare for a higher course of training in the common school is small compared with the masses that depend on it for their entire education. For the nation at large the common school is the one educational unit that is of transcendent importance. No readjustment of the elementary curriculum should be made solely for one-sided and minor reasons of high-school and college requirements, All plans for reform, in order to be feasible, must show that they are an advantage to the elementary school, considered by itself and in its direct relation to life. In other words, no change in the curriculum should be made for the benefit of the college, if it does not, at the same time, benefit the common school itself.

The great, constant, and beneficent influence which colleges and universities have had on the development of our institutions, political, social, and economic, is hardly appreciated to its full extent. Not a law is passed in Congress or legislature that is not in a measure the outflow of the training which leading minds have received directly or indirectly through higher education. Not a mill is built in the centers of industry, not a wheel turns in factory or shop, except in accord with the design and plan of some college-trained brain. From the columns of the daily paper, which molds and leads opinion, from the pages of every book that instructs or entertains the American home, the voice of the college speaks through one of its disciples. And yet, no matter how fully we appreciate the importance of college life, no matter how strong our conviction that the public high-school would fail in one of its important aims if it did not direct constantly the aspiration of the pupil toward college, we must concede that the importance of the common school for the nation is infinitely greater than that of the college, both on account of the immense number who attend the common school and owe to it their whole education, and on account of the wider range of the social classes with which it is in touch through its local distribution throughout every part of our country. Where Americans live the common school lives. In the common inter-

est taken in it by the whole people, in the importance of its work for the maintenance of national institutions, the common school and its interest ranks first and above all others. This applies most emphatically to the elementary school and also in a great measure to the high school. Where a readjustment of the totality of educational conditions becomes a necessity, the one principle which I believe every educator should maintain is that the interests of the common school must not suffer. The common school represents the larger national value.

There are two questions involved in the plan under discussion. The one is the shortening of the district-school course by condensation. In addition to this abbreviation, the plan contemplates the transfer of two years of the district-school curriculum to the high school.

The transfer of district-school studies to the high school is attended by certain administrative difficulties. It is a question not so much of principle as of expediency and of ways and means. For the school systems of large cities, questions of finance are very pressing and vital ones. High-school instruction is much more costly than the elementary-school work. I do not understand that it is claimed that the work of the higher grades of the district school is not well done, and that the transfer of the work to the high school should be made for that reason. The transfer of two grades of the district schools to the high schools would add a large per capita cost to the expense of education, without any apparent gain in educational results.

The localization of attendance.—The transfer of children after a six-years' common-school course to some high school located at a distance from the school which they have been attending is objectionable for other practical reasons. What might be called "localization of school attendance" seems to be a universal law, although it has been discussed chiefly in connection with college enrolment. Great colleges of national reputation draw their students, to an astonishing extent, from the immediate neighborhood of the place in which they are located. It has been stated, if I mistake not, by the esteemed chairman of this meeting, that Harvard, Yale, and Princeton draw about 90 per

cent. of their students from a radius of about a hundred and fifty miles. Statistics of high-school attendance would probably show a similar principle. The proximity of the school is an inducement to attendance. Whenever children have finished the district-school course a considerable number leave altogether, on account of the greater distance which they would have to travel if they continued their training in the high school.

If the elementary course were divided by delegating two years of it to the high school, the effect would be something entirely different from the proposed transfer of some studies. It would mean in reality that the common-school course is made shorter. To put two years of the district-school course into the high school, even in an abridged or condensed form, would not be merely a change of location, but would probably result in an absolute shortening of the course. A large number of children would discontinue their schooling altogether after having finished the short elementary course

An elementary course of seven years.—While there are good reasons against a transfer of the two highest grades of the elementary-school course to the high schools, and against its incidental reduction to six years, the shortening of the time to seven years deserves more favorable consideration. Such a course would cover the ages from six to thirteen, and would represent a fairly well-defined period in the child's physical and mental life. Its termination would correspond approximately with the time of transition from childhood to youth, with all the changes in the physiological organization that this implies. Mentally it usually marks a greater prevalence of seriousness, interest in life-affairs, an awakening and sense of responsibility, and stronger evidence of power for good or evil. The high school would profit by a shortening of the elementary course, because very often the reason why a parent does not send his boy or girl to the high school is that he considers him too old to begin a course of training which requires four years to finish.

Waste in elementary education.—A reduction of the time of the elementary course to seven years should be brought about, not by condensation and a high-pressure system of more work in

less time, but by a selection of the essentials in the prevailing studies, the weeding out of superfluities, and the stoppage of waste. On this basis a seven-years' course could be elaborated which would be perfectly satisfactory for the average child. There should be a flexible system of grading and promotion in connection with such a course which would enable the talented child to complete the elementary work in less than seven years, and make it equally feasible for the slow child to spend a longer time.

There is a certain waste in common-school education which may be remedied by a stricter enforcement of the ordinary principles of common-sense and pedagogical experience. In an investigation which I conducted several years ago it was found that about a year's time was being lost somewhere in the elementary course of our city schools. It was fully expected that this retardation could be located in the higher grades, where the difficulties of the work increase, where the study of geography and history introduces new elements, and arithmetic becomes more complicated. Contrary to expectation, the final result of the inquiry showed that the loss took place in the lower grades, from the first to the fifth. A further surprising result of the investigation was that there appeared no retardation, or loss of time in the higher grades, but rather an acceleration; in many instances the work of two years was done in a year or a year and a half.

Causes of retardation in studies.—The retardation in the lower grades is due to quite a number of more or less obvious causes. One of them is that the principle of thoroughness in elementary work is at times carried too far. Grade teachers, principals, and supervisory officers should remember that each grade is followed by some other grade that goes over much of the same work once more, and fixes and deepens the impressions made by preceding instruction. There is at times in the minds of teachers an ideal of absolute perfection which stops the child's progress by keeping him drilling on topics which he knows sufficiently well to take the next step. Many things which the child learns will become more and more fixed in his mind as he passes on

through higher work of the same kind. Each grade must of necessity leave some work for the next—"absolute perfection is not the learner's, but the master's attainment." That there are data and principles in the work of each grade which must be absolutely learned is obviously true; but it is also true that there are others which, when fairly well known, suggest progress and promotion. Discrimination and good sense on the part of the teacher are necessary to secure the proper application of the principle of thoroughness in elementary work.

Competent supervision of the work of the teachers, and inspiring leadership of principals and superintendents, are conditions of good educational results. Nevertheless in some good school systems the very excellence and force of the supervisory staff have resulted in a loss of time. Supervision is likely to have this result if it looks too exclusively after results and not sufficiently after *methods* of teaching; after the acquisition of data through memory rather than the utilizing of the data for the training of judgment and thought. The teacher, for instance, who knows that her work and standing are likely to be judged by the supervisory officer in accordance with the lightning speed and "glibness" with which the class recites the tables in arithmetic assigned to the grade, will keep the class drilling on tables and numbers not only until it knows them, but until it has known them well for quite a while. Usually proficiency is a cause for promotion; in some cases it is a reason why the class is *not* promoted. The teacher is unwilling to send the bright class to the next room until the impending quarterly visit of the supervisor has taken place and the attainments of the pupils have been duly credited to the skill of the teacher. Until that moment they are kept marking time around the goal of "thoroughness." The child's best interests are sacrificed to distorted notions of perfection when a class which has attained reasonable proficiency is not allowed to take the next step in advance. Half-baked knowledge, like half-baked bread, may be indigestible, but it is also true that knowledge overdone becomes nauseating and destroys mental appetite.

In elementary instruction, as in higher work, the proper dis-

crimination as to the relative values of the subjects of instruction will prevent waste. Data are necessary, but the principles under which they can be subsumed, and which appeal to judgment and intelligence, should be first in importance in the every-day work of teaching, and should not be forgotten in the more or less mechanical exercise of memory. As in the proper conduct of an examination in arithmetic, for instance, the child should receive credit for the correct process, even if the results should happen to be wrong by an error in ciphering, so in all instruction, progress and promotion should have for their test the intelligent grouping and handling of facts and an insight into principles, and should not be made to depend exclusively on the number of the data that have been lodged in the memory and are capable of reproduction in examination. Written examinations have their proper place in instruction. They guard against diffuseness and against "too much method with too little matter." But as an exclusive test for promotion they are a curse; they force the teacher's activity into the narrow channels of acquisition through memory work, and put obstacles in the way of the proper cultivation of judgment and skill. The elementary school prepares the child most efficiently for high-school work, or for life, by laying stress more on skill and thought than on the quantity of the data of knowledge.

The adjustment of elementary instruction to a course of seven years should not be one of condensation, which crowds more data into an already short time, but rather one of omission—the omission of many pages, or even of a whole book, in geography; the omission of various topics in arithmetic; the omission of dates and meaningless or irrelevant details in history; and the omission of much of the merely technical part of grammar.

There should, on the other hand, be no curtailment of time in regard to the essentials such as in the development of skill and of the training of thoughtful habits of study. It would be a one-sided view of education to look upon it solely as the result of the efforts of teacher and child, which can be hastened at will. Education is largely a matter of growth which requires time and makes haste pernicious.

The results of common-school training should be expressed rather in terms of power, than in terms of pages. The child when leaving the elementary school, after a seven-years' course, should be able to read English easily and intelligently and to discriminate in the use of words he should be able to express in writing his thoughts on everyday subjects within the limits of his own experience. His handwriting should be clear and legible. He should possess a fair degree of skill in the common processes of arithmetic and readiness to reason out solutions of problems. He should have a clear understanding of the general ideas of geography, such as the position and movements of the earth, and the physical causes of terrestrial life; he should also have an elementary knowledge of topical geography, *i. e.*, the location of cities, rivers, mountains, etc. He should know the drift of American history, and have a thoughtful knowledge of the contents of the constitution of the United States. A certain amount of manual training, which includes drawing, may form part of this course.

There is waste in the common schools, not only in regard to the number of data required to be studied, but also, to some extent, in the methods of teaching. I do not advocate the European plan of purely oral instruction in the elementary schools. Books are a necessity in modern life, and elementary education had better recognize this fact and teach their use. Books offer to the child and to the adult opportunities of extending and continuing his education, and the library is to the whole community a source of refined pleasure as well as of knowledge. To initiate the child to a knowledge of books and, what is more important, to give him the ability to use them for purposes of reading, and purpose of study, to teach him to love and enjoy books, should be indispensable parts of modern elementary education, and I believe the American common school to be superior to its European sisters in regard to the more extensive use of books as means of instruction. The ability to extract information and pleasure from the printed page is not only good preparation for life, but good preparation for high school and college. While thus emphatically indorsing the use of

text-books in the elementary schools, their misuse has been, and is, a drawback in education and implies a waste of time. The proper use of the book in the elementary school requires that the teacher and class should read and study the text-book together. The preparation for each lesson should require that teacher and class attack it jointly, with the book open before them. The topic is illustrated and discussed with constant reference to the presentation of the matter in this book. Class and teacher sift the important from the unimportant, group dependent data under general ideas, and distinguish between principle and application. This is an excellent introduction to the *thoughtful* seizing of the contents of a lesson as distinguished from the acquisition of the data of a text-book where lessons are assigned to be memorized. What Professor Hinsdale called the study recitation should be the common mode of teaching many of the subjects in the elementary schools. The text-book then fills its proper place and enables the child to review and to master in detail and more thoroughly, the lesson with which he has become acquainted by joint study with the teacher. It enables the slow child to keep step with the brighter child who does not need such additional application. It brings in an element of rational balance by allowing the weaker and less gifted child to put more time into the work as a partial equivalent for the greater talent of the other. The old way of assigning lessons by pages in the text-book, and throwing the child entirely on his own resources, is a more frequent cause of waste in common-school education than is usually supposed.

Possibility of reduction.—With a proper selection of subject-matter, and perhaps with the substitution of one book in geography for the customary two; with a reduction of the number of text-books in arithmetic; with stress laid on the practical and intelligent acquisition of good English (deferring some of the formal grammar to the time when a foreign language is studied in the high school); and with a change in the method of conducting recitations; a course of study in the elementary school based on seven years instead of eight is feasible. A seven-years' elementary course will probably increase the high-school attend-

ance. The experience of Kansas City and other places in regard to this matter seems convincing. I believe that Superintendent Greenwood asserts that there is no city in the United States where the high-school attendance, in proportion to the number of children enrolled, is as large as in Kansas City, which has a seven-years' elementary course and an enrolment of over 3,700 high school students, with a total school enrolment of 29,000.

An elementary course of seven years would steer clear of the dangers which a reduction to six years would carry with it. It would not stint the common school for the sake of the high school or college. It would not lead to a high-pressure system in elementary instruction, which must be avoided at all hazards. While a seven-years' course would probably enable the average child to go to the high school at an earlier age than he does at present, there should be provided a way for the talented boy or girl to shorten even this time. This is made possible by the system of individual promotions, which prevails in many of the western schools, where the classes are separated by but small intervals of time. To illustrate: in many rooms there are two classes of children with an interval of from one to two quarters' work between them. This makes it feasible for the teacher, when she sees a very talented child in her second class, who is capable of doing the work of a higher grade, to put him with the first class, with a quarter's gain in time for the child. Moreover, it should be made possible for a whole class to finish the work allotted in a course of study in less time than the prescribed half-year or years. Every school should have provision for promoting capable children from class to class, or from room to room, whenever reasonable proficiency has been obtained in the work allotted to the grade. In this system of flexible promotions, the possession of a sufficient knowledge of the data of the work is requisite, but there is always need of laying at least equal stress on the ability to do work, on the possession of skill, on the evidence of good judgment, and on the power to reason. Such individual promotions can rarely be decided by written examinations, but must be made on the basis of the teacher's knowledge of the power of the child. There should be in every

school a certain lively flow of progress, both in regard to new knowledge presented, and in regard to the child's advancement from grade to grade. Such a system will rather enhance than impair the efficiency of the elementary schools, and enable the child to enter the high school and the college a year earlier than he does now.

F. LOUIS SOLDAN.

ST. LOUIS, MO.

DISCUSSION.

PROFESSOR JOHN DEWEY: I find myself in such accord with the proposition that I shall not take your time in making any arguments against it. The reasons for it have been so fully presented that I do not see my way to add anything in that line. So I shall confine my remarks to raising two questions which come to the minds of all of us, and making some statements suggested by these questions.

1. Will the reduction of the elementary period to six years tend to restrict the movement now making to enrich the curriculum; by which I understand the movement to introduce more worthy objects of study and important modes of activity? Will it promote a reaction to the more formal and mechanical course which we are just now at great cost escaping?

2. Will the beginning of more specialized and professional work at the very outset of the university period tend to exclude important facts of general culture from the education of those going into professions?

I put the question in this way because, if these results were to follow, I suppose we would all condemn the propositions before us; because they suggest real dangers, and yet suggest their own adequate answer. If the proposition were carried out in a purely mechanical way—simply lopping of a year here and transferring it bodily from this year to that—then the scheme would undoubtodly have these undesirable results. But this quantitative and external re-arrangement is only, I take it, for the purpose of securing administrative conditions of an internal and qualitative readjustment. The real value of the scheme is in the opportunity it affords and the demand it makes for a more efficient division of labor between the elementary, secondary, and collegiate members of the educational organism.

While there is altogether too much separation between the grades and the high school and the high school and the college, there is not enough distinction. The separation is in the outward forms; too

many barriers; too many encouragements to dropping out at the various transitions; too many discouragers from continuity. But at the same time there is too little recognition, practical and theoretical, of the definite kind of work most profitably to be undertaken by each.

The elementary school has too long a period to be occupied advantageously with its own particular task; it is induced and even compelled to assume aims outside of its own proper function, to the confusion of its own work, and to the detriment of the service it might render other parts of the system. The high school, on the contrary, has too little time to perform its own work, and consequently it is cramped and irritated and hurried in its operations.

1. *The elementary period.* — It would seem as if the length of time allowed would enable the elementary school to accomplish its own work and do something besides. But the length of time allotted represents a misconception of the aim of this period, and so tends to a misdirection of energy. The aim, as ordinarily considered, is to cover a certain amount of ground in studies and thus acquire a certain amount of knowledge. Since this represents all the information the mass of future citizens will get in any scholastic way, there has been a constant tendency to increase the term of time so as to cover more ground.

When I say that the acquiring of knowledge is not the proper end of elementary education, and to make that the aim is to encroach upon secondary instruction, I do not mean that children at present are getting too much knowledge. Of course, they get too little, and less, in my judgment, than they would get if the focus of effort was somewhere else. I mean the aim is placed wrong. The proper aim of elementary tuition, I should say, is to organize the instincts and impulses of children into working interests and tools. The stress should be upon method, not upon result; not that we do not want results, but that we get better results, when we transfer the emphasis of attention to the problem of mental attitude and operation. We need to develop a certain active interest in truth and its allies, a certain disposition of inquiry together with command of the tools that make it effective; and to organize certain modes of activity in observation, construction, expression and reflection.

Six years ought to be enough to accomplish this task. And the limiting of the period to that time would, in my judgment, tend in the long run to make clear what is the real issue of elementary education. Such an outcome in the minds of the general public and of teachers

would free energy from devotion to false aims and irrelevant tasks. The elementary schools would be relieved of its two chief time-wasting factors: on one side, daily repetition of drill in rudiments which have been previously mastered; and, upon the other, anticipations of advanced subject-matter so difficult that it can be pursued intelligently only at a later period. The present elementary-school child spends too much time in oscillation between doing over again what has already been done, and reaching out in a blind way to do the things belonging to the future. He vibrates too much between marking time, and rushing forward, grasping and uncertain, to come abruptly and violently up against matters for which he has no adequate organs of apprehension. A reduction of time, and an accompanying definition of the real problem and function of the elementary school would have a tendency to remedy both of these evils. In other words, I am unable to find myself in agreement with the distinguished authority who said that the elementary school is all right except in its later years — the grammar-school period. The waste of time in these years appears to my mind only as one aspect of a larger question. The main object in laying hands upon the seventh and eighth grades is to encourage the movement for reconstruction all along the line.

2. *The secondary period.*—As to the fact that the high school has not enough time to do its own work properly, the case is so much clearer that I need not detain you with a detailed discussion. The high school at present has no definite task of its own, and no specific aim. It begins at no definite point and it ends at none. It stops, as President Harper has just told us, in the middle of a situation. It carries nothing to completion, but spends its energy in preparation for a work finished elsewhere. It makes beginnings, of the issue of which it has no vision, and over the consequences of which it has no supervision. Hence the waste that results from confusion and continual distraction of energy. A six-year period would enable the high school to face its own peculiar problem: That of opening to the mind avenues of approach to all the typical phases of nature and society, and acquiring a sympathetic knowledge of these areas of life — culture, in a word. Facing its own problem without distortion from outside pressure, it would have free space and leisure in which to work out that knowledge of the universe of nature and of humanity that is worth while; and that would enable its graduates to undertake later specialization in professional and research lines in an intelligent way — intelligent both as to consciousness of their own capacities, tastes, and

needs, and as to the knowledge of the relations of the particular province to which they are to devote themselves to the whole federated field of life. If I were to take enough of your time, I think I could show the bearings of this proposition upon the conflict in the high school of the scientific, social, historical and linguistic groups of studies. This conflict is now so serious that the average student is either compelled to narrow his sphere of study and thus to narrow himself; or, if he tries to broaden out, to lose himself in a footless marsh.

I am not specially optimistic as to the immediate outcome in this matter. I do not anticipate that a change of time-periods will make an immediate solution along the lines indicated. I have no doubt that the change would be at first of a somewhat mechanical nature. The eighth grade would be transferred to the high school without much re-qualification; some of the preceding work in the elementary grades would be cut off. At first, the high schools in their fifth and sixth years would largely duplicate the present work of the first and second years of college. But this would not last long. There would be a demand for a new adjustment and sequence of work — the broadening of the horizon would suggest new arrangements. The economics of the situation would gradually compel a more internal reorganization. Upon the whole, it is certain that the conditions under which work is done and the aims of that work must fit together.

If we change the conditions, there will be a general, even if largely unintentional, modification of purposes and consequently of the methods and materials employed. In the due course of time there will be a real system — a unity of aim with the distinction of functions best fitted to realize it in a continuous co-operative way.

CORRELATION OF SUBJECTS IN SECONDARY MATHEMATICAL TEACHING.[1]

It is no longer possible for the teacher of secondary mathematics to define his function in terms of subject-matter merely. So long as the function of the school was conceived to be the purveying of intellectual material to a class of selected individuals, the fallacy of such a definition was not readily discernible. But in these latter days, instead of defining the teacher as one *licensed* to teach, we prefer to define him as one who *can* teach. This change in the definition of a teacher alters the conception of his teaching function. The change in the definition also shifts the emphasis of attention in the teaching process from the subject to the person taught, and many improvements have followed in the train of this transfer of emphasis. It is here maintained, and it could be readily proved, that of all teachers, mathematical teachers have shown about the least disposition to respond to the pedagogical advance of recent times. Many of us seem to think that, like whisky, truth, and violins, mathematical matter and method undergo a ripening process with the flight of years when kept in a perfectly dry condition, and that Euclid is about the best after all.

It is, however, encouraging to remember that, while there may be persons here who can recall when the secondary mathematical teacher's office was regarded as definable in purely intellectual terms, it is also true that such persons have lived long enough to see a significant breaking away from the narrow ideals of a past age. The introduction into nearly all branches and grades of school work of a wonderfully vitalizing democratic impulse has already been wrought. One of the significant consequences of this new impulse is that no thinker on modern educational problems now attempts to define teaching of any sort, unless perchance it be mathematical teaching, without calling to

[1] Read at the autumn conference of the Affiliated and Co-operating Schools of the University of Chicago, 1902.

his aid the ideas which lie back of the words "pupil" and "society." If there now remains any subject of the curriculum whose devotees still argue its right to an important place in education, on the score of its general uselessness, it is mathematics. If this is true of mathematics, in one respect at least, mathematics enjoys an unenviable distinction. Notice that it is not maintained that the best mathematicians do actually insist that the reason for the educational importance of their subject is its general worthlessness; but rather that the devotees of other subjects do not hesitate to admit that the chief claim of their subjects for a place in the education of youth is the general usefulness of their teachings. But the art-for-art's-sake, food-for-food's-sake period has not yet passed for mathematics. The doctrine now generally admitted throughout the elementary school, that it is the pupil, rather than the subject, that is to be taught has penetrated secondary mathematical teaching practice to but a very limited extent, while most university teaching remains practically immune from the contagion of this very wholesome doctrine. This last remark will be regarded as gratuitous in this connection unless it be borne in mind that, coming as secondary teachers do from the universities, where they have been lumped with every form of mathematical student regardless of purpose, and looking as they do to universities for educational guidance, these teachers become in great degree imitative of their masters and, wittingly or unwittingly, carry into the secondary school the *en masse* system of handling their pupils.

These strictures on secondary mathematical teaching may seem a little severe; but, brethren of the mathematical fraternity, it is less painful to have the error of our ways pointed out by one another than it is to have them held up to scorn by those who are outside of the order. The question I beg to have you consider is not so much whether the statements of this paper are palatable, as whether they are justifiable under the circumstances.

There is probably no subject in which, as regards subject-matter, there is so little to be taken on faith, authority, or on

any ground other than reason as in mathematics. It is not too much to expect of the specialist in any subject that he shall exemplify in his thought-processes the distinguishing characteristic of his chosen subject. And yet we behold the rather startling spectacle of mathematical teachers being more firmly bound for methods of teaching their subjects to tradition, to authority, and to custom than is the case with almost any other class of teachers. It would even seem that we should ourselves detect this inconsistency. For is it not a part of the common routine of the mathematical teacher to insist during the day that his pupils shall accept nothing as true unless its right to acceptance has been demonstrated on the basis of sufficient reasons, and to spend his evening hours learning what to do next day by what somebody said or did from a hundred to two thousand years ago? Well may our friends, the enemy, deride us with the "Physician, heal thyself!"

A few remarks with regard to another point to which the attention of live teachers should be directed is the notion which is quite prevalent among certain classes of mathematical teachers and which is utterly without foundation that mathematical teachers need no special professional training for their work. If this were true of mathematical teaching, it would be the sole occupation, known to man, which even approaches the professional state, of which it is true. But mathematics sits upon an eminence of lonely grandeur with regard to so many things pedagogical that the mere singularity of her situation has long since ceased to be a matter of surprise to us. With regard to other subjects commonly classed as belonging to, or even aspiring to, the professional state, a confession that no peculiarly professional training is necessary before the novice enters upon its practice is looked upon as relegating it to a primitive state; a study of the situation will also emphasize the "primitive state" view of mathematical teaching. The fact is that when we examine into the question a little we find that almost no mathematical teachers have had special preparation for their work other than that obtained by practicing upon the unfortunates who happened to fall under their tutelage in an

early stage of their teaching experience. In good degree at least this accounts for the oft-repeated maxim among mathematicians that a thorough knowledge of subject-matter is all that is needed to guarantee a successful teaching experience to the prospective mathematical aspirant. Disregarding the unfortunate fact that the advice embodied in these ill-considered words is responsible for very much of the poor mathematical teaching which afflicts the secondary school, the practice of the very persons who utter these words has turned hundreds of students away from a study of the subject to other and more promising fields of endeavor.

But it would perhaps have been safe to assume that persons interested enough in a way of teaching mathematics to attend a discussion on the topic of this occasion are more open-minded to methods of teaching mathematics than are either the class of teachers who believe current mathematical teaching is good enough, or the class who believe the mathematical teacher is born, not made. Many of us have been in direct contact with mathematical teaching long enough to learn, among other things, that secondary mathematical teaching is just about the poorest secondary teaching there is, notwithstanding the fact that we have had something to do with it; and also that the poorest of poor mathematical teachers is likely to be the one who imagines himself to be the born teacher. But some one has well said the really born teacher never knows it. To such persons as are here, however, it will be worth while to say something with reference to correlation in secondary teaching.

The writer has learned from divers sources that his idea of correlation is essentially different from that of many persons. In the minds of many, correlation of subjects means the same thing as the inter-relation of subjects. In my mind inter-relation is not the whole story—nor indeed is it a very large part of it. Interconnection of subjects keeps the thought on subject-matter. Correlation of subjects makes prominent the reaction of the learning mind upon the subjects. Correlation takes place in the mind of the learner; inter-relation is an external thing, brought about by the teacher. In correlation the student is the chief

matter of concern; in inter-relation the student is a secondary consideration. If there is no real bond between the subjects, clearly perceived and vigorously grasped by the learning mind, there is no correlation no matter how perfect the inter-connections of subjects may seem to the teacher. In short, to the writer, correlation means about this: in the natural unfolding of the thought life of the pupil put about him an atmosphere of such subjects as are most conducive to the promotion of this unfolding process, regardless of how the text-book makers have labeled the subjects, or whether they have labeled them at all or not. Correlation makes the education of the pupil—his mathematical education included—emerge from a rational study by the pupil of his own experiences.

For mathematics in the secondary school this would mean, not merely that algebra, geometry, physics, astronomy should be carried along abreast. It means more than this; it means also the laboratory method applied to mathematics. But again it means more; it means that, in connection with the pupil's other scientific work, geometrical surveying with the plane table, the elements of common surveying with the customary instruments, if the school can afford them, with extemporized instruments if it cannot, observational astronomy; also with home-made apparatus, if nothing better is available; scale drawing, graph drawing, the use of squared paper, trigonometry, the elements of the differential calculus—these and more than these should all find a place somewhere in the secondary mathematical training of the pupil. It is not to be understood that these subjects, as separate and more or less complete subjects, should be introduced into the already over-full curriculum; but rather that as the ideas arise in science study of whatever sort, or elsewhere, when a grasp of the quantitative elements is essential to an adequate comprehension on the pupil's part, that whatever mathematical ideas are involved in any natural problem, these ideas shall be systematically brought out, cleared up by graphical work, or otherwise, and fully evaluated mathematically.

It is sometimes objected to the proposed plan here suggested that everything which correlation seeks to accomplish may be

secured more economically by having the mathematical teacher draw his own illustrations from physics, or elsewhere, when he needs them. This objection is valid only when a knowledge of geometry is regarded as getting over 150 pages of a book in a specified time, and time alone is the element to be economized. But a writer of note on education has told us that education is the profitable *losing* of time. Furthermore, when the pupil feels that the problem in question has not been trumped up by the teacher merely to trip him into a little extra study of an inherently uninteresting subject, but that it is a real problem, he takes it up with a spirit and zest unheard-of in the class-room of the mathematical logic-chopper; for occasional illustrations, brought in here and there, to give a pupil temporary contact with what he is supposed to be thinking about always impress the pupil with the feeling that it is after all but an oil and water mixture of two essentially different subjects.

Only those who have tried putting the pupil in the midst of the actual conditions of everyday life can appreciate to the full the influence of normal conditions upon the mental tenor of the pupil. Most of us have been saying so long that the school is an artificial contrivance to produce an enlightened citizenship that we come to think the mechanical is a necessary element in education. These things we say constitute education, forgetful, apparently, that most of the pupil's real education is gotten outside of the school. We imagine we are not teaching when we are interpreting to the pupil, or putting him where he can interpret for himself, the interrogatories which nature confronts him with at every turn. Others tell us we are not teaching when we are doing this and then we are convinced of the error of our way and fall back into the beaten path. Through the stifling effect of our own school experience we have learned how not to be interested in the common phenomena about us and we naturally infer that these matters are of no interest to the high-school boy or girl. One of the strongest arguments for correlation in secondary teaching is that it gets hold of the pupil early enough to keep alive his native interest in common things and teaches the pupil how to make himself at home in

his environment. In course of time he learns the secret of making this environment his tool rather than his master.

Correlation accomplishes much in the way of closing up the gaps for the pupil in our educational system. It breaks down the wooden notion that each subject shall be completed before another is taken up and makes the keynote of educational effort the continuous exercise of all the mental faculties through their normal activities. It plants the pupil firmly upon the solid ground of reality until he has laid by a rich store of well-understood concrete particulars, from which in due time he can proceed with steady step to a higher and surer power of abstraction than can be secured by the insistence on premature accuracy so characteristic of present secondary mathematical teaching. The pupil must see the reason for accuracy and for abstract work before he can profit by them, and this is what correlation, rightly understood and sanely practiced, will do for him; for it accepts the existing mental state of the pupil and demands that the teacher shall meet him more than half-way — all the way, if need be — with both subject-matter and method. It cheapens the teacher's criticisms of the pupils previous training and premiums the teacher's duty as his pupil's helper.

Perhaps the most valuable aid to mathematical teaching in the secondary school rendered by correlation is that it compels the mathematical subjects to break down the bars of that splendid isolation which has hitherto remained proof against argument, reason, and both common and uncommon sense. It gives to mathematics a social value and enables the teacher to state the meaning of his effort in terms of the all-around education of the pupil. This has already been accomplished for most of the other subjects of the secondary school and has been found to put a new significance into them. When this has been accomplished for mathematics, we shall be able to state the educational value of mathematical study in terms less general than mental discipline. This is a consummation devoutly to be wished, for it will be a distinct gain for secondary mathematics. There are many good thinkers among us that dispute the claims of mathematics to so large a place as it now occupies

in the secondary school on grounds of mental discipline alone. Mathematical teachers cannot hold themselves aloof from these disputes. If they are unjustifiable, they must be shown to be so, and even this has not yet been done. Moreover, if the spirit of the present time is any justification of a prediction for the future, we may be pretty sure that the school is to be raised more and more fully to the dignity of a social center as time goes on. The much-vaunted conservatism of mathematical teachers which seems to withstand pretty much everything that can be brought against it cannot hold out successfully against the accusation that in the midst of general educational progress, these teachers alone remain open to the charge of unprogressiveness. Conservatism is all very well under circumstances, but open-mindedness to progress is a virtue at all times. Mathematical teachers, secondary teachers among others, have not always shown themselves possessed of this cardinal pedagogic virtue. We shall be reminded soon of the unpleasant fact that conservatism is a respectable cloak for a tremendous amount of ignorance unless it is judiciously worn. Conservatism can be carried to a degree which amounts to obstruction and approaches dangerously near to the reactionary. There is more than one sincere student of the educational tendencies of our time who believe that most mathematical teachers have reached this stage.

There is an *a priori* reason why mathematical teachers are especially liable to neglect the educational bearings of their teachings and the pedagogical aspects of their subjects. There is no class of subjects which demand such a degree of thorough mental concentration upon subject-matter as do the mathematical subjects. Once the mathematical student, by this intense exclusion of all outside notions, begins to lay hold on the rhythm, symmetry, balance, and proportion of parts in a quantitative question, love for which are the essence of the mathematical turn of mind, and he is in great danger of being led out of sympathetic contact with the struggling pupil whose uncertain grasp of the real meaning of quantitative relations makes impossible for him more than a very feeble and halting enthusiasm for mathematical

truth. Disgusted at the failure of his pupil to appreciate the charm of these truths, which to his trained mind constitute the essence of the beautiful, the enthusiastic mathematical teacher loses interest in his pupil, comes to hold him in a sort of ill-concealed contempt, and at best, from a sense of his duty as teacher, assumes toward the pupil a patronizing air. This, I say, is a natural, though not a necessary, tendency of the real student of mathematics, and no one but the real mathematical student is fit to be a teacher of mathematics. Enthusiasm in the pupil, which again we mathematical folk estimate at altogether too low a rating, can be begotten of nothing save a genuine enthusiasm in the teacher.

No one will make the mistake of assuming the implication of these remarks to be that the teacher of mathematics must remain ignorant of his subject to preserve an interest in his pupil. Quite the contrary implication is intended. It is contended only that mathematical study is subject in an especial sense to the danger of a loss of sympathy on the part of the teacher for the learner. And this is pointed out only with a view to the suggestion that we ought to resist this tendency in the future more successfully than we have hitherto succeeded in resisting it. We must not forget that we are to be teachers primarily, recitation-posts, and mathematical wonders only secondarily, if at all. We must strive to teach in reality, not merely to fling great quantities of mathematical information to the winds, trusting to Providence or luck for some one to happen along to get informed. This process is wasteful of the energies of pupil, teacher, patron, and of every other agency involved in the school, either directly or indirectly. Correlation of subjects keeps the mathematical teacher ever in the same state of mind as his pupil, for both of them are continually engaged in the work of discovering the abstract in the concrete and the concrete in the abstract. This insures a community of interests and sympathies between them.

But the final question remains: Can we prepare our pupils for the university and college by such a plan of teaching? To this it is unfortunate that we must answer, No! if these institutions continue to demand in substance so many pages of certain texts

on geometry or algebra for admission. It is, however, no censure against secondary teaching that it does not fit its students for such an artificial test as this. The charge lies against other defendants. But there is a doctrine which is rapidly gaining the assent of educators to the effect that secondary schools should do the best thing possible for the pupil, and that the universities must be content to select their students from such pupils. Even now the only barrier is the artificial one of the entrance examination in mathematics, and perhaps Latin, for students prepared under correlated teaching make the best quality of university student. Indeed, this is the very reason why the method, if method it may be called, of such teaching is so urgently advocated. That it would bring two students to the mathematical work of the universities where there is now but one, and that every such student would lay a much more vital hold on mathematical truth, are only two of the incidental benefits the general adoption of this plan of secondary mathematical teaching would bring about. Everyone would find himself not only possessed of the mathematical faculty, but he would also learn the secret of getting hold of and using this faculty, which is now generally looked upon as a special gift of the gods vouchsafed to but a favored few.

That the method advocated in this paper would make the work of the teacher lighter is not claimed. It would certainly make selection of efficient teachers a matter of supreme importance. The weakling would certainly bungle; but must we take our bearings from the bungler? There is some encouragement in the thought that even the bungler, by this method, could not produce more unsatisfactory results than current practice is producing. There is also solace in the thought that if the teacher's labor is increased, the dignity of his office would be correspondingly heightened. The teacher by this method would have to stand on his merits, but capable teachers have never hesitated to do this.

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DRAWING AS A SUBJECT FOR COLLEGE ENTRANCE CREDIT.[1]

THE college seeks to perpetuate its own ideals. These ideals have found expression in the curriculum. This has changed from time to time, but the changes have not kept pace with the evolution of society. Hence, whenever a new subject gets recognition from the college, it is the result of a new demand in society; and the initiative is taken, not by the college, but by the lower school which is in closer touch with the people. The college at first seems deaf to such a demand; but gradually, as the pressure increases, the college modifies its curriculum. And so the process goes on, the college yielding only to pressure.

What is true of the college curriculum is true of its requirements for admission. The college wants its students prepared in the fullest possible degree to pursue the particular studies it offers. When the college emphasizes classics and mathematics in its curriculum, classics and mathematics are emphasized in its requirements for admission; when science and government are allowed a large place in the curriculum, science and history are accorded a place in the preparatory course. Even if it were granted that this practice of restricting the preparatory course was the wisest from the college point of view, which may be doubted, it certainly does not encourage the broadest and soundest secondary-school training

It has been maintained that the best preparation for college and the best preparation for life, for those who cannot attend college as well as those who can, is one and the same thing. The verdict of high-school teachers, as shown by recent writings and modifications of the secondary-school curriculum, is that the narrow preparatory school of the past is not the best that can be given to young men and young women who go from the high school directly into their life-work. Accepting this verdict of

[1] Read at the conference of affiliated and co-operating schools of the University of Chicago, autumn meeting, 1902.

the high-school teachers, then it follows that, if the contention that the best preparation for college is also the best preparation for life is well founded, the college must modify its requirements. Even if this contention is not true, would it not be good educational policy, as well as good pedagogy, for the college to recognize a wider range of subjects in the secondary school?

Is it not possible that the college would be the gainer? It would then keep its hold upon a larger part of the curriculum of the secondary school — a hold which it is losing as fast as new subjects are introduced into the secondary school, and these are increasing in response to the legitimate demands of the people. The college would then influence favorably these newer subjects, guarding against a too narrow utilitarianism, and insuring in them a reasonable percentage of the culture elements.

We are all aware that many colleges have taken and are taking steps in the direction here suggested. Encouraged by the more democratic spirit of the universities, many of the colleges have come to recognize scientific and historical studies. In this connection it is interesting to know that at the meeting of the executive committee of the College Entrance Examination Board of the Middle States and Maryland, held November 9, 1901, it was voted to add botany, geography, Spanish, and drawing to the list of subjects in which examinations are held. This was to meet the needs of the colleges accepting the examinations. (Chemistry and physics were, of course, already on the list.) The number of students taking the examinations in these new subjects last summer was as follows: in botany, 5; geography, 6; Spanish, 9; and drawing, 136.

As already suggested, the all-important question that, as a rule, the college has asked in the past when selecting a subject for entrance credit is this: "Is this subject a necessary part of the most direct preparation for the work that the student is to do during his four years with us?" If not, this subject is left out of the list. Under these conditions, so far as I know, drawing has found no place among subjects accepted for college entrance, except, recently, in such cases as Columbia, in the schools of

architecture and engineering, and Harvard in the Lawrence Scientific School, where definite requirements in drawing are made, and Minnesota, where drawing is allowed entrance credit in the colleges of mines and engineering. This requirement at Harvard and Columbia, however, is for the same reason that the older subjects, as mathematics and Latin, are required in the classical college, namely: to enable the college to do a higher grade of work in that subject. There is no apparent consideration of the special needs of pupils of secondary-school age and very little consideration of the culture value of the subject to students of that age. The aim is to master certain technical difficulties—the grammar of drawing.

Is not the time at hand when the college should recognize drawing on higher ground than direct technical preparation for courses in science and engineering?[1] Why should not the college, in determining whether drawing or any other subject is fit to receive entrance credit, ask also the questions: What is its social value? Of what practical value is it to the individual? Does it possess culture elements? Is it a subject that belongs especially to the secondary stage of education? When answers to such questions as these are given their due weight, drawing will be found on the list of credit subjects.

Drawing is a means of expression auxiliary to speech; its directness and its force are recognized more and more. As proof of this statement we have but to call to mind the rapidly increasing use of drawings in popular books, magazines, scientific treatises, advertising devices, and the daily newspapers. Often the drawings are more important than the printed words that go with them. As a means of expression drawing is more pointed and usually far more effective. The man who has power to use both drawing and speech effectively can make a double contribution to society; and his work is sure to be harmonious. Who has not been impressed with the perfection of even the simpler parts of the works of William Hamilton Gibson! Either his drawing or

[1] Johns Hopkins University has taken a notable step in this direction by requiring one year of work in drawing (three hours a week) for the degree of A.B. This may be either freehand or mechanical.

his written language would attract us, but together they become a masterpiece. The college recognizes one of these means of expression; why should it not recognize the other also?

But drawing is a means of expression and communication apart from written speech in both the industrial arts and the fine arts. In most of the industrial arts drawing is the chief means of transmitting facts of design and construction, and in some of them it is the very foundation upon which everything else depends. It is common to speak of a working drawing as a "business letter to a mechanic." We speak of it thus because it may have all the good points of a perfect business letter. It may be brief, direct, to the point, forceful, comprehensive, and clear. If more people could write such business letters to the mechanics they employ, there would be fewer misunderstandings in the world and less waste of human energy by friction between those who want things and those who make them. It goes without saying that every trained mechanic, every engineer and architect, must know how to draw; but too seldom is it appreciated how much the power to draw is needed by every educated man. He needs it as an auxiliary to speech, as a means of transmitting thought concerning the industrial arts; for every man has wants which must be supplied by these arts, and he needs it also in his recreation. More and more some form of handicraft is being taken up profitably as a means of recreation after severer mental effort. Very often the value and the degree of pleasure in such work depends upon ability to draw.

But it is in the fine arts that drawing reaches its highest level. Here not only facts of form and tone are depicted, but human feelings are expressed, and even the attributes of the Infinite Father are brought before our vision. While this highest level of expression through drawing cannot be compassed in the secondary school, the school can reach up toward it—can encourage the student on. It can also help him to appreciate the works of the masters of painting and sculpture and architecture. No one is likely to challenge the statement that in America we are in great need of a fuller and finer and truer appreciation of works of art. Next to power to create we need the power to

appreciate; and for the most of us the latter is far more important than the former. The study of drawing as at present taught in some of the best secondary schools, opens the door to an appreciation of the world's great masterpieces. To draw under the direction of a wise teacher an antefix taken from the Parthenon, is but an introduction to a study of the crowning glory of Greek architecture; to sketch one of its pediment figures or to study the composition of its frieze is to become acquainted with Phidias, and to learn of the age of Pericles. Copying the lotus flower or the winged globe may suggest a study of the religious beliefs and the colossal temples of the ancient Pharaohs; finding out the windings of a Moorish panel ornament may lure one on to the beauties of the Alhambra; designing a grille may reveal the spirit of the crafts and guilds of the Middle Ages; sketching a classmate, even, who has taken his turn as model, may lead to a critical study of the drawings of Rembrandt or Michael Angelo. Drawing does not — certainly need not and should not — stop with mere technique. It reaches out and touches history, literature, the fine arts, and religion, and becomes an important culture study.

Drawing is also a valuable means of hand-and-eye training, and as such it belongs especially in the secondary school. In the elementary school its chief value is as a means of expression; in the secondary school the objects drawn are more fully and accurately represented; technique becomes an object, and the result is more definite hand-and-eye training. Both theory and practice have pointed out that as hand-and-eye training drawing is more valuable in the secondary school than in the college. Students who have never done serious work in drawing before they reach college find greater difficulty in learning to draw than they would had they begun in the secondary school.

To summarize, drawing is a fit subject to receive college-entrance credit, not merely in cases where drawing is to be pursued in the college, but also where it is not. Drawing furnishes a means of expression which is of great practical value to the individual and to society; it is a means of culture. It is needed

in every secondary school. Every college student is the better fitted for his work for having studied it. For these reasons the college should recognize thorough work in drawing by allowing entrance credit for it.

The effect of such action upon the secondary school would be to encourage it to bring its work in drawing up to a higher standard, and to make this standard more nearly uniform throughout the country. More students would take drawing, for they would appreciate its value much more. The effect upon the college, especially where a liberal system of credit is in vogue, hardly would be appreciable. Students presenting drawing might be a little short in one or two other subjects, but with a flexible curriculum no serious difficulties would arise. Gradually the broader general preparation would be appreciated by most or all of the departments of the college, while some would recognize a distinct and definite advantage on account of it. The effect upon the individual student, which effect ought to outweigh all others together, would be to give him more universal and perfect means of expression, to increase his practical power, to develop in him a higher appreciation of the beautiful, to give him a freer and fuller opportunity to find out his own aptitudes, and thus to make himself a more efficient member of society.

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HOME STUDY IN THE SECONDARY SCHOOLS OF GERMANY.

THE amount of home work which might reasonably be expected from a boy, has already afforded material for many disputes between teachers and parents, between teachers and head-masters, between the "ordinarius," as the head-teacher of a class is called in Germany, and his colleagues, and in the upper classes it has been discussed even between teachers and pupils. No positive result, however, has, as yet, been obtained. All that the school authorities have accomplished is to limit home-work to two hours in the lower, and to three hours in the middle and upper classes. This order was easy to issue, but difficult to have obeyed. The pupils, it is true, were willing to work but two hours, but what can they do if the teacher does not curtail their task; if, for instance, one alone gives the boys two hours of home-work?

This is the weak point in the scheme, for there is no control over the teachers in the matter of home-work, except in the boarding-schools. In these the study-lessons in the evening or afternoon are superintended by a teacher. When the clock strikes nine the boys must close their books and go to bed. In case they have not been able to do all the work which has been assigned them, the teacher simply states in a book, lying on the desk for that purpose, that the boys have worked diligently and well, but that the task set for them was too great. On the following morning this book is shown to the master for whose lesson the boys are not sufficiently prepared, or whose home-work they have not quite finished, and he will not risk to punish, or even to blame the boys but will quietly limit the task for the next day.

With the other schools, however, it is quite a different matter. There is no supervising master at home, and the testimony of the parents is not considered as valid; they are believed to be partial and always inclined to excuse their children's idleness or

slowness in working. So the children must often sit up till late in the night to avoid being scolded or punished by their teachers. There would be a thorough remedy by obliging all teachers to limit their tasks to twenty-five minutes in each branch of instruction. As there are five lessons a day the average time required for home-work would not exceed two hours. But this measure has met with violent opposition. Especially the classical and mathematical teachers raised the objections that this would be restricting the pupils' own free wills, it would deprive them of the possibility of following their inclinations, that some tasks required more than double the time, and that the pupils would become mere machines. Consequently this plan has been dropped; the boys continue to work late into the night, the parents to lament their boys' hard lot, and the teachers to assign excessive home lessons.

But how is it that only in our own time complaints concerning the amount of home-work have been so frequently heard? Why did we not formerly hear of the boys' strength being too severely taxed? There are several reasons for it: First of all the separation of the various branches of instruction, several of which were formerly taught to a class by one master. Now each of the masters teaches only one subject to a class. The system of the fachlehrer, *i. e.*, the teacher of a special subject, has become prevalent in Germany. These men are real masters, or even artists in their particular subjects, and they consequently wish their pupils to become so too. The mathematical teacher likes to have only little Euclids in his class, the classical master, Ciceros or Demostheneses, the teacher of history would see Raumers or Rankes before him, and similarly in the other departments. They lack a just estimate of a boy's ability, and so they become exacting to a degree which is often hardly compatible with sound reason. Why has the ancient system been abolished, under which a single teacher gave instruction in three or four different branches? They knew from their own work what an amount of industry and talent was required in order to be well prepared for a lesson; they never gave too much home-work, because they could survey the whole, which is no longer

possible, since each teacher knows only what he has given and takes no cognizance of what his fellows have assigned.

Another drawback is to be found in the fact that a great many of the teachers — especially in the lower classes where the boys should learn to work — are unmarried. They do not have the chance to observe the over-worked boy. If these teachers were married and saw their own boys sitting before them, they would gladly lessen the tasks and drive the pale faces from the desk to healthful amusement.

To make the misfortune greater, most of the young teachers are officers in the reserve ; they are accustomed to military discipline and consider any incorrectness in the home-work as if it were disobedience to a military order, and ought to be punished with greatest severity. If they but knew the real difficulties under which a boy must often labor in a crowded home, they would certainly change their opinion of the practicability of military discipline in schools.

And why had we not to complain of too much work in our boyhood? Simply because there was in every class one gentleman, or even two, for whom we did nothing, in whose lessons we even ventured to make our preparations for the next lesson. Do you think that in our riper years we condemn them? Not we, surely! We still consider them as benefactors to youth, as oases amidst the vast desert of work which surrounded us on all sides, as men who during the lesson taught us enough of their knowledge, but who spared our leisure hours and left us the afternoons to strengthen our bodies and to relieve our minds.

It is the undeniable merit of the reform method to have brought about some change with regard to home-work. The adherents of this method claim that the principal work which is done in a school must be done in the class-room, under the eyes and with the assistance of the teacher, and not at home. And it is a real pleasure to assist at such a lesson—no dry examining or hearing of lessons which have been learned from books at home, but a brisk fire of questions and answers, of inquiries and explanation. There is also home-work in this method but it is reduced to a minimum. There are words to be

learned at home for the foreign languages, but how easily they are learned if the teacher has first used them in connected sentences where bright boys might even make out their meaning at sight! How well the pronunciation is remembered, if the words are first heard from the teacher's lips, and if their derivation or formation is shown before they are to be memorized! As long as the old methods prevailed—and, I am sorry to say, it still prevails in most schools—there were hundreds of words to be learned without the slightest assistance from the teacher. They were *home-work* and had to be crammed into one's head, no matter what time might be required for the process. Even while I write these lines my boy is sitting beside me, and is learning a German poem by heart, a poem which needs thorough explanation in many passages, yet not a word of it has been read or explained in the class. When the time comes for recitation many mistakes will occur which might have been avoided and the boy's work made much easier, had the teacher only taken pains to explain the poem before assigning it as home-work.

And what is the result of this method, the result of this too much home-work? It is either to make the boys weak and nervous, unable, or at least unwilling, to work, or to make them cheaters or deceivers. Too much home-work compels them to sit up late at night at an age when the body requires a full night's rest; working so much by lamp-light injures the eyes; lack of sleep renders them incapable of clear thinking in the morning classes, and weakens their brain. The lack of exercise in the open air deprives their sinews of that power and stalwartness which we need for our compulsory military service. The teachers ought not to forget that in consequence of the political and geographical position of our country, we need not only learned boys but, above all, sturdy fellows who are able to bear arms in defense of their native land.

Beyond a certain point, too much home-work makes the boys refractory and induces them to deceive their teachers. Instead of spending half the night over their books, they persuade some more industrious boy to lend them his completed exercise; they quickly copy it, adding some blunders to hide

the deceit, and so the work which was intended to be beneficial has become the reverse, by being injurious to their character. The teacher has driven them to despair and is partly responsible for this deception.

There is only one means by which we may alter this state of things in our German schools. Each teacher ought to record in a task-book what amount of home-work he has given to the class for the following day. This work should be limited to thirty minutes in each branch, for the total time then required to prepare for the five morning recitations would be two and a half hours—a sufficiently long time. Any excess by a teacher could be corrected by the ordinarius, to whose care the welfare of the class is confided, and who ought to examine the task-book of his class every day. And if his authority were not sufficient for the purpose, the head-master ought to take the matter in hand and deal with it in such a manner that a repetition of the infringement would be impossible.

OSCAR THIERGEN.

DRESDEN.

THE EDUCATIONAL VALUE OF EXAMINATIONS FOR ADMISSION TO COLLEGE.

EXAMINATIONS are presumably means to an end, not an end in themselves. Their value will be determined by the service they render in the attainment of the desired ends. In school work the interested parties are the pupil who is entitled to make the most of himself, the teacher whose professional reputation is at stake, and the school or educational system which is supported directly or indirectly by the public for the public good.

There can be no doubt of the educational value of examinations to those who conduct the examinations. Our daily experience shows conclusively enough that success in life depends largely upon the critical acumen which precedes and influences judgment. Perhaps this is one reason (it is hardly becoming in me to make the suggestion) why colleges cling so tenaciously to the privilege of examining candidates for admission.

But seriously, it is good for a boy occasionally to have to pass formal examinations. He may some day want to be a civil servant—a policeman, a street-sweeper, or a teacher (this is not intended to be an anti-climax)—and then he will be required to come to terms with a list of questions and an examining board. Moreover, he will have frequent use in life for the ability to conceal his own ignorance. And when we consider, in the words of Richard Baxter, "how very little it is that we know in comparison to that we are ignorant of," it will be seen that the ability to veneer this vast body of ignorance with a respectable coating of usable information is an accomplishment not lightly to be regarded. It might also be mentioned in this appreciation of the educational value of examinations (*for those who are examined*) that there is nothing more likely to take the conceit out of a fellow than a try at a paper

[1] A paper read before the Association of Colleges and Preparatory Schools in the Middle States and Maryland at a meeting held in Baltimore, November 28, 1902.

set by persons whom he doesn't know in a subject which he thinks he does know. As a modern philosopher has remarked: "A reasonable amount of fleas is good for a dog; they keep him f'm broodin' on bein' a dog."

The topic assigned me, as I understand it, excludes the consideration of examinations given in the course of instruction for the purpose of making that instruction more efficient. Such tests as written recitations, quizzes, term, and final examinations and the like are of the greatest value to the teacher who is really concerned in educating his pupils. These examinations are indispensable; they need no argument to justify the position they hold in our scheme of instruction. But examinations conducted by outside authorities are in another category. They, too, may have a place and be valuable, but the justification must come from some other source.

From the standpoint of the pupil, examinations conducted by persons outside the school are far and away more harmful than helpful. I grant that they do tend to keep lazy boys up to the scratch, to show the conceited how little they know, to train the nervous and scatterbrained to hold themselves in and do something on time: in short, they do help a boy to pull himself together and concentrate himself on a task which requires all strength and ingenuity. But what is it all worth in comparison with the attendant evils? The tendency to substitute for high ideals in scholarship a mere caricature of learning, to put forward a mechanical process as the *summum bonum* of the school course, to replace clear thinking by guesswork, to regard the examiner as a person to be satisfied at any cost — honestly, if possible, dishonestly, if necessary. Any scheme that puts a premium on success at a particular time or under peculiar conditions, strains the moral fiber. It is certainly good for moral fiber to withstand a strain; but, when for sake of reward or fear of failure the strain becomes unendurable, the result is altogether bad. The recent experience of an eastern preparatory school is by no means exceptional, save in the extent of the fault and the publicity given to it. The relation between candidate and examiner does not promote high moral standards, witness the

need of proctors and the unwillingness of boys, even college students, to assume the moral responsibility of taking examinations without watchers. The overseers of a New England College (Tufts) have recently published the following criticism of prevailing student customs:

> It is well understood that the student body in most colleges has always sanctioned a highly artificial code of morals which thoughtful men would repudiate at once in the domain of business or of society. This peculiar code, which tolerates cheating in examinations, justifies the destruction of private property in the celebration of athletic victories, encourages boorish manners, and various forms of reprehensible conduct and causes strained relations between professors and students, was perhaps a natural outgrowth of the inflexible curriculum and the paternal form of college government which prevailed until comparatively recent years.

The situation is a relic of that educational barbarism which assumed no honesty in the scholar, and no sympathy in the master.

On this point, therefore, let there be no misunderstanding. To the boy who is examined by outside authorities *for the sake of personal gain*, there can be no benefit worth mentioning which cannot be secured equally well in some less reprehensible way; but, on the contrary, the process tends to lower our intellectual and moral standards, a fact which, through long familiarity, we have come to minimize or to entirely disregard.

But, as I have said, there is a place for examinations, and in that place they have a distinct value. *Outside examinations are imperative whenever the secondary schools are unable or unwilling to assume the responsibility of meeting the requirements for admission to colleges and universities.* If good work is to be done in our colleges and professional schools, a suitable foundation must be laid in the field of secondary education. If the secondary schools will not, or cannot, assure the strength of that foundation, then it is imperative that the higher institutions impose their own tests. Weak schools, of course, may be left out of consideration. But why, it may be asked, should any secondary school refuse to certify to the strength of its candidates, if it is capable of doing so? Several reasons at once suggest themselves: lack of knowledge of what the higher education really demands, modesty

in proclaiming one's own belief, unwillingness to be tacitly responsible for work over which one has no control, inability to withstand the importunity of ambitious parents, adherence to collegiate customs, and so on through a long catalogue. We have all heard them many times, and in many forms, varying from the modest excuse to the utterly imbecile apology.

So trivial do some of the reasons seem, and so out of harmony with the character of the men who put them forth that I have concluded to look deeper for the true cause of the apparent unwillingness of certain secondary-school masters to stand sponsor for their scholars. When the principal of a large high school tells me that he has more important work to do than to satisfy the crotchets of some college professor, I can see an obvious reason for his position, but when the master of a school avowedly preparatory to college, and well assured of its patronage, tells me that he prefers outside judgment as to who of his pupils shall go to college, I am at a loss to understand his meaning without appeal to first principles.

The great public schools of England — Eton, Harrow, Rugby, and the rest — have long been ideal fitting schools. Their ideal is, I need hardly say, out and out English; it is not French; it is not German; it is not American, but it is a type which finds sympathy and support everywhere.

An Englishman, high in the councils of the government, has recently said:[1]

> We have never made an idol of intellectual instruction imparted in day schools. In other words, our great educators have upheld the belief (though we are far from having lived up to all that the belief implies) that a school ought to be something higher than a knowledge factory; that what a man *is* matters a great deal more than what he *knows*: That wise actions involve many vital elements besides intellectual attainments; and that education, in the true sense of the word, is an atmosphere and a discipline affecting heart, and mind and body, and neglecting none of the three.

Again he says:[2]

> We are in the habit of liking our national life to be so arranged as to allow as much freedom as possible for every gifted individual to express himself according to his inborn faculty. This means that we prefer untidy

[1] DR. SADLER, *Special Reports*, Vol. IX, p. 9. [2] P. 501.

freedom to an immaculately neat system of restraints. We resent the idea of pressing boys or girls to learn a great deal at school. We believe in the value of a good deal of well-employed idleness during early years.

In other words the master has much more to do in school than to give instruction, and for the boy there is a larger and more important life than the life of the class-room. Kipling portrays that life most admirably in *The Brushwood Boy:*

> Ten years in an English school do not encourage dreaming. Georgie won his growth and chest measurement, and a few other things which did not appear on the bills, under a system of cricket, football, and paper chases, from four to five days a week, which provided for three lawful cuts of a ground-ash if any boy absented himself from these entertainments. . . . . At last he blossomed into full glory as head of the school, *ex officio* captain of the games, head of his house, where he and his lieutenants preserved discipline and decency among seventy boys from twelve to seventeen; general arbiter in the quarrels which spring up among the touchy Sixth, and intimate friend and ally of the Head himself. . . . . Above all, he was responsible for that thing called the tone of the school, and few realize with what passionate devotion a certain type of boy throws himself into this work. Home was a far-away country, full of ponies and fishing and shooting, and men-visitors, who interfered with one's plans; but school was the real world, where things of vital importance happened, and crises arose that must be dealt with promptly and quietly. . . . . and Georgie was glad to be back in authority when the holidays ended. Behind him, but not too near, was the wise and temperate Head, now suggesting the wisdom of the serpent, now counseling the mildness of the dove; leading him on to see, more by half-hints than by any direct word, how boys and men are all of a piece, and how he who can handle the one will assuredly in time control the other.
>
> For the rest, the school was not encouraged to dwell on its emotions, but rather to keep in hard condition, to avoid false quantities, and to enter the army direct, without the help of the expensive London crammer, under whose roof young blood learns too much. Cottar, *major*, went the way of hundreds before him. The Head gave him six months' final polish, taught him what kind of answers best please a certain kind of examiners, and handed him over to the properly constituted authorities, who passed him into Sandhurst. He did not know that he bore with him from school and college a character worth much fine gold, but was pleased to find his mess so kindly. He had plenty of money of his own; his training had set the public-school mask upon his face, and had taught him how many were the "things no fellow can do." By virtue of the same training he kept his pores open and his mouth shut.

This little sketch of Kipling's is, I believe, the best portrait of the English public school in existence. He puts duty, com-

mon sense, character, in the foreground, as the great ends to be desired in education. Hence, his *Praise of Famous Men:*

And we all praise famous men—
  Ancients of the college;
For they taught us common sense—
Tried to teach us common sense—
Truth and God's Own Common Sense
  Which is more than knowledge.

This we learned from famous men
  Knowing not its uses
When they showed in daily work
Man must finish off his work—
Right or wrong, his daily work—
  And without excuses.

This we learned from famous men
  Teaching in our borders,
Who declared it was the best,
Safest, easiest, and the best,—
Expeditious, wise and best,—
  To obey your orders.

This we learned from famous men
  Knowing not we learned it,
Only, as the years went by—
Lonely, as the years went by—
Far from help as the years went by
  Plainer we discerned it.

Wherefore praise we famous men
  From whose bays we borrow—
They that put aside Today—
All the joys of their Today—
And with toil of their Today—
  Bought for us Tomorrow.

Such an ideal of education as this demands, indeed, famous men as teachers. They are men who cannot be harnessed to a system or hampered by restraints. The master is the school, and because masters differ, the schools will not conform to an accepted norm. A few succeed; others overreach themselves and are lamentable failures. Under such a system intellectual attainment ranks as one aim among many, and it is conceivable that it may not always be the most important one. Strength of char-

acter, honesty, integrity, physical prowess, the ability to lead one's fellows, cannot be relegated to second rank in any system of education. Moreover, the intimacy between master and scholar in a good home school—an intimacy which, in the course of years, ripens into an affection that is akin to parental love—makes it extremely difficult for the teacher to judge the boy from one standpoint only. He knows him too well; his faults and his virtues are spread before him in an open book. To single out one attainment on which to predict the future is to neglect others which will surely tell as time goes on. How can the master, under such conditions, be a righteous judge? So it happens that in such a system of education examinations conducted by higher authorities come easily and naturally to be the culmination of the school course.

Say what we will about the English school system, we Americans do believe in the best ideals of English education. There is something in "Tom Brown's School Days" which thrills us as schoolmasters even more than when we were schoolboys. We are ready to say, and we generally mean it, that what a man *is* is of far more consequence than what he *knows*. We believe that the making of man is the chief end of school work, and we are not unwilling to borrow methods from those who seem to be successful in making a certain type of Englishman.

But notwithstanding our admiration for some things in English education, we cannot accept all that the system implies: class distinctions; "boarding schools for those who are to be leaders in Church and State, day schools of an inferior sort for the masses;" separation of the sexes whenever possible; interference of a state church; low ideals of scholarship. Some of those we regard not so much a fault of English education as of English life, but bad teaching is certainly the work of poor teachers.

It has been remarked that in judging a teacher, the German asks, What does he know? the American, What can he do? the Englishman, Is he a good fellow? Dr. Sadler, whose office in England corresponds to that of Dr. Harris in this country, says on this point:[3]

[3] *Special Reports*, Vol. IX, pp. 10, 11.

No schoolmasters in the world lavish more time and thought and strength on the care of their pupils than the English secondary schoolmasters. On what may be called the pastoral side of their office, they are beyond rivalry. . . . . But because the English secondary schoolmaster so often lives among his pupils from morning to night, he has far less time and strength to spare for professional studies than has his continental counterpart. He is much more the friend of his pupils, and much fresher in his sympathies with the interests of young people. But he is far less of a student; as a rule, is much less learned; and is often a hardened amateur in his methods of teaching . . . . Clumsy, antiquated methods of instruction are far too common in our secondary schools.

For the remedy he points his countrymen to Germany and extols German scholarship and German thoroughness.

The Germans have succeeded in getting a much larger proportion of their people to go through an advanced course of instruction than is the case in England . . . . They have managed to inculcate scientific habits of mind and a disposition towards intellectual organization and co-operation to a degree quite unparalleled here . . . . They have skilfully applied education as an instrument in furthering their commercial and industrial interests. . . . . We shall find ourselves virtually compelled by their action to replace much of our old educational machinery by something which works more economically and turns out a more modern fabric[1] . . . . The strength of German education lies in its great tradition of disinterested devotion to knowledge in the self-sacrificing labours of the teachers; . . . . and in the infinite capacity for taking pains, which (whether innate or the result of a long tradition of educational discipline) is characteristic of so many German minds.

"The German schools," he points out,[2] "could never have become what they are today, had it not been for the high intellectual qualifications of the teachers, and for the care taken to weed out those who are lacking in professional aptitude for the work of teaching." It is for an intellectual tradition, as persistent and congenial as the ethical tradition which characterizes the best English education, that Dr. Sadler pleads:[3]

The development of individual intelligence is largely a question of methods of teaching, but also of choice of studies. Educational efficiency of the best kind depends on having small classes; highly trained teachers; skilful methods of teaching; not too many subjects; the right order of subjects; the right choice of subjects; and the avoidance of hurry; of excessive competition, and of intellectual overstrain . . . . The keen study of methods

[1] *Special Reports*, Vol. IX, p. 55. [2] *Ibid.*, p. 71. [3] *Ibid.*, pp. 163, 164.

by teachers is one of the best signs of educational progress. But the aim should be, not to enable the pupil to win a prize or a scholarship by a certain time, or to pass in some competitive examination (though I am far from meaning to imply that all competition is bad or that all examinations could be dispensed with) but to start him in the right way of learning things for himself, to arouse his interest in important subjects, and to give him a sure foundation of accurate and well-directed knowledge. Large numbers of our secondary schools are worried by a superfluity of examinations. It would be far better to have some well-defined intellectual aim for each school, and to allow the teachers to work steadily and quietly toward that aim.

I have quoted thus at length from a high English authority, to show how conscious some Englishmen are of the great defects in English education. His verdict is, in a word, (1) low ideals of scholarship and (2) bad teaching. Both lead naturally and inevitably to the curse of examinations systematized and conducted by authority of the state or university.

Little wonder that the Englishman in seeking for light should turn to Germany. German education is strong precisely where English education is weak. The one system lacks just what the other can give. All the world knows what German universities stand for: investigation, research, pure scholarship. But the German secondary school is the foundation upon which the German university stands. It has its own intellectual traditions and points to a long line of scholarly schoolmasters, the finest class-room teachers in the world. Here are blended the scholarly attainments and skill in teaching, which the Englishman and the American must admire and ought to covet. No lecturing or hearing recitations in a German school; the teacher is there to instruct. And instruction means to the pupil the acquisition of useful information—knowledge systematized and directed toward some end which is itself worthy of attainment. Hence the German teacher points out the way; the pupil follows his instructions confidently knowing that there is no better way. The work in class day by day is not guess-work; there is no dawdling over lessons out of school, no juggling with problems in mathematics or thumbing of lexicons to make sense out of a foreign-language exercise. The teacher has a purpose, and that purpose is to see to it that his pupils learn what for the time being is most important for them to know.

With teachers who know what to teach and how and when to teach it, there is no need for outside examinations to decide the matter of promotion or graduation. At the end of each year, the class teachers, in a German secondary school, determine who in their opinion are qualified to do the work of the next higher class, and at the end of the course, candidates for the university are passed on or held back by verdict of the teachers of the highest class. There is a final examination, to be sure, conducted under the supervision of a state official ; but the questions are set by the teachers of the candidates on the work of the preceding year and the results are weighed and estimated by these same teachers. But so nicely is part adjusted to part in this great system that there is likely to be no greater variation in the attainments of boys coming up to the universities from different schools, than of those coming from any particular school.

Say what we will of the German school system, of its inflexibility, its subserviency to state control, its military character, we Americans do admire its adherence to high ideals of scholarship, its appreciation of the teacher's profession, and its success in methods of teaching. We recognize that it is a piece of finely adjusted machinery and that in the attainment of German aims, better means could hardly be devised. We have shown our appreciation in enduring forms: Andrew D. White says that, intellectually, Germany is the second mother of the United States.[4] "More than any other country, Germany has made the universities and technical high schools of America what they now are—a powerful force in the development of American civilization." It is German influence, too, working in the realm of higher education, which has propounded to the secondary schools some of the most vexing questions of the past decade.

We Americans are, as Mr. Kipling puts it, "mixed peoples with all the vices of men and boys combined." But along with the vices go virtues, which our schoolmasters steadily keep to the front. We may be ethically English, intellectually German, but we are naturally, if accidentally, American, We believe in

[4] London *Times*, December 1, 1900.

the doctrine of equal opportunity for all men, and for every boy and girl who can use it we believe it an educational ladder reaching from the kindergarten to the university. That ideal at least is not English and it is certainly not German. We believe in helping each pupil to make the most of his opportunities and to become that which he wishes to be, providing his aim is not too obviously harmful to his fellows. We set up no barriers, social or otherwise, to hamper his progress, and we never regard his career as ended until he is safely under ground. There is no "culmination" in American life short of death itself. Our school system, therefore, if it is to fit for American life, can have no bounds. We have no right to speak of the "culmination" of a school course, unless we mean thereby, in college parlance, a "commencement." And least of all should we think of examinations as the culmination of anything educational.

Let us reason together about this thing—this relic of educational barbarism. It comes to us with the English stamp not yet effaced; it bespeaks a tradition of poor scholarship and bad teaching. It is enforced by institutions which are more than half "made in Germany," but which are complacent enough to suppose that German scholarship can be erected on a secondary education, the sole guarantee of which is an examination for college entrance, or in lieu thereof, as was once remarked in a meeting of this association, "the good looks of the candidate." Is it not more reasonable to suppose that when we succeed in evolving an American system of education—really American, I mean, not a mere cross or hybrid—it will be a unity? a system necessarily made up of constituent parts, but so nicely adjusted that part will work with part in organic unison? When that time comes I venture to predict we shall hear nothing of examination for admission to any grade or to any school, but much will be said of examinations for instruction and promotion. The elementary school will pass on its pupils into the secondary school, and the secondary school will admit them to college, if that be their proper aim. Or, more properly speaking, scholars who are let out of one grade or school will admit themselves to the grade or school next higher? Already we hear it said that graduates

of any good four-year high-school course should find a college course open to them. I accept the statement, and should be glad to add to it these words — "without examination by college authorities."

But before these words can be added, the American public must see to it that the high-school course is really good, and that the teachers, in point of character, scholarship, and professional ability, are really worthy of the positions they occupy, and of the hire which they ought to have. In the meantime, it is our duty to be righteously discontent with our present schemes of state inspection, regents' examinations, college entrance boards, and the like, knowing them all to be dispensations of Providence, calculated to keep us humble, and fit us for a more blessed state. The millenium is not yet in sight, but the advance made in recent years in the matter of uniform entrance requirements, and especially in the establishment of the College Entrance Board, is most gratifying. But while we are waiting, let us be honest enough to confess that all these examination schemes are devices, as some say, to impress upon a doubting world the great importance of certain indispensable institutions of higher learning, or the acknowledgment, as others declare, of the shortcomings of American secondary schools, and the incapacity of American secondary schoolmasters.

To sum up: Examinations must have a place in every scheme of instruction. Instruction can proceed only when the extent and quality of the learner's knowledge is definitely understood. Every recitation, every review, is such an examination; further examinations of a formal sort are often desirable for the sake both of the teacher and of the pupil. But such examinations are given by teachers within the school or school system and primarily for the purpose of instruction. Examinations by those outside the school, especially when given for the purpose of determining a pupil's ability to undertake an entirely new course of instruction, have no educational value *for the pupil* which cannot be secured equally well in some less reprehensible way. Such examinations, however, are practically necessary when intellectual attainment is not the only aim of school instruction,

and both necessary and inevitable when that instruction is inefficient. Outside examinations are imperative whenever the secondary schools are unable or unwilling to assume the responsibility of meeting the requirements for admission to colleges and universities. Until a norm of secondary instruction is established and generally recognized, college entrance examinations cannot be dispensed with. The sole object of this paper is to show that such examinations have no especial educational value for those who are examined; they do have a distinct value in our school system and must be retained until some better plan is found for keeping weak schools up to grade and for the elimination of bad teaching. The scheme of college entrance examinations is altogether a matter of temporary expediency. It tests merely the candidate's store of learning and to some extent his ability to use that learning; it does not measure his intellectual desires, his moral strength or his æsthetic taste. Meanwhile it is our duty to find some way of assuring the intellectual ability which students must have on admission to college and at the same time of encouraging the preparatory schools to emphasize in their course of training the manly virtues and the liberal culture which all men need in life.

JAMES E. RUSSELL.

TEACHERS COLLEGE,
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EDITORIAL NOTES.

GEORGE HERBERT LOCKE.

THE HIGH SCHOOLS OF ILLINOIS

UNDER the auspices of the Department of Education of the University of Illinois there has appeared a very interesting and valuable statistical study of the high schools of the state, by Mr. Frederick Gordon Bonser. It has the exceptional merit of covering the field of investigation pretty thoroughly, as of the 311 high schools in the state reports were received from 297. This is a very high percentage, and reflects great credit upon the investigator, who must have been patiently persistent. From this study we learn that 25.2 per cent. of the schools have a course of three years, 73.6 per cent. have four years, and 1 per cent. five years. Less than 5 per cent. of the schools have a shorter year than thirty-four weeks, and in almost half, the year ranges from thirty-eight to forty weeks. Forty-nine different subjects are found in the schools, eleven of which may be termed constants, in that they occur in more than 75 per cent. and eight of them in more than 85 per cent. The eleven subjects, in the order of their prominence, are algebra, geometry, physics, botany, Latin, English literature, zoölogy, physiology, general history, civics, and physiography.

An examination of some of the information in regard to the specific subjects will be of interest. First, we shall examine the returns in mathematics. Algebra is taught in every school, and in seven-eighths of them in the first year. In only four schools are algebra and geometry begun simultaneously. Geometry is taught in the first year in only 2 per cent. of the schools. Over 93 per cent. have five recitations a week in algebra, and it is taught for one year in 20 per cent. of the schools, for a year and a half in 43 per cent., and for two years in 29 per cent. In about 50 per cent. of the schools the recitation is forty minutes in length, and this is true of almost all subjects. Plane geometry is taught in 97.9 per cent., or 291 schools; it is given in the second year in 27 per cent., in the third year in 38 per cent., in a part of both the second and third in 19 per cent., in the third and fourth in 6 per cent., and in the fourth only in 4 per cent. Solid geometry is offered in 93.4 per cent., or 189 schools, and is assigned to the third year in 52 per cent. and in the fourth to 42 per cent. The time is generally a half year. Trigonometry is taught in 16 schools and generally in the fourth year. Arithmetic is taught in 45 schools, 15.1 per cent., is generally assigned to the third year, and is given five times a week throughout the year. Bookkeeping may perhaps be classed

with mathematics for high-school statistics, and is given in 86 schools, 28.2 per cent., and generally in the first year.

The work in languages shows much more unevenness. English grammar is taught in 14 schools and generally for half the first year. English composition is reported from 217 schools, 72.9 per cent., and in almost half the schools it is assigned to the first year. As might be expected, the number of recitations varies greatly, as in many cases it alternates or is combined with rhetoric. Rhetoric is in 184 schools, and here again there is some confusion, as in 26 per cent. the rhetoric is reported as included in the time given to composition. Literature, including English and American, is offered by 83.3 per cent., generally has five recitations a week, and is distributed pretty well over the four years. Latin is reported by 265 schools, 89.9 per cent., is given for four years in 52 per cent., and for the first three years in 13 per cent. German is rapidly growing and is found in 103 schools, 34.6 per cent., and in almost half of these is a two years' course given during the last two years. In 24 per cent it is given through the four years. French suffers greatly by comparison with German, it being taught in only 26 schools, of which number 14 are in Chicago. In 60 per cent. of the schools reporting it is given throughout the four years, and generally four times a week. Greek is reported in 34 schools, and is assigned to the last three years. Spanish and Swedish are in one or two schools.

History, civics, and political economy form a group to which much attention has been given. General history is reported from 245 schools, and in many of the smaller ones this is the only European history given. The second year seems to be the popular time, as it is reported in 35 per cent. as given then, and generally continues for a year. English and American history without differentiation is reported in 125 schools, English is differentiated from American in 44 schools, and generally given in the third or fourth year, American in 68 schools, and in the fourth year. Greek and Roman history is offered in 25 per cent. of the schools, and generally for a year. Mediæval and modern history is offered in 7 schools, and French history in 2. Civics is taught in 259 schools, generally in the first or fourth year, and during half a year. Economics, including political economy, is reported by 38 schools and is given in the fourth year.

In the science group there are some interesting developments. Nearly 40 per cent. of the schools make no report of laboratory work either in botany or zoölogy, and 27 per cent. make no mention of any in connection with physics. In 25 per cent. of the 196 schools teaching both physics and chemistry, chemistry precedes physics; in 17 per cent. they are given in the same year. Physics is reported from 290 schools, and given in 49 per cent. in the third year, and in 37 per cent. in the fourth. The common arrangement as to time is to give two double periods for the laboratory and three periods for textbook recitations. In 149 schools, or about one-half of the schools, chemistry

is offered. Generally it is given in the fourth year, and the arrangement as to laboratory periods is about the same as in the case of physics. Twenty-seven per cent. give less than a year, 68 per cent. give a year, and 1 gives two years. Botany is taught in 281 schools, generally in the second year and for a half year. Zoölogy is reported from 263, shares the second year with botany, being taught for approximately the same time. From 8 schools biology is reported. Physiology is taught in 255 and almost always in the first year, during a half year. Astronomy is reported by 79, almost without exception in the fourth year. Physiography is offered in 228, and generally in the first year; geology in 49, and generally in the fourth; psychology in 8, and in the fourth year.

Commercial geography is taught in 5 and commercial law in 4 schools; constitutional history in 1 school; drawing in 80, and generally distributed over the four years; mechanical drawing in only 3 schools; elocution in 4 schools; history of commerce in 3 schools; manual training in 9 schools; music in 10; pedagogy in 3; physical culture in 5; stenography and typewriting in 11.

In 13.8 per cent. of these high schools there is but one teacher reported, and the course is generally three years. Almost 22 per cent. have only two teachers, and nearly one-third have but three. College graduates form 54.4 per cent. of the teaching force, and normal graduates 15.6 per. cent. A very interesting fact is that, whereas the percentage of boys in the total enrolment is but 33.8, they constitute 37.5 per cent. of the fourth-year class.

A distinctive feature of secondary education in Illinois is the increasing number of township high schools, and the time seems not far distant when the girl or boy in the rural districts of the state will have the opportunities for higher education within easy reach.

BOOK REVIEWS.

SOME GERMAN TEXTS.

Keller-Legenden. With Introduction, Notes and Vocabulary. By MARGARETE MÜLLER AND CARLA WEUCKEBACH. New York: Henry Holt & Co., 1902.

GOTTFRIED KELLER is one of the most charming of the German story-tellers of the nineteenth century, a master whose works are full of a naïve humor appealing to all readers. His popularity is deservedly growing apace even on this side of the Atlantic. For students, however, his works need very careful editing, and anything else is a mistake. The edition before us is a mistake. There are several misprints in the text in the first few pages, not to go farther, such as *hervor zu thun* for *hervorzuthun* on the first and *der* for *die* on the eighth (l. 1). But the serious errors are in the meager character of the notes and in the careless compilation of the vocabulary. Supposing we render the opening paragraph according to the help to be derived from the notes and vocabulary, and the translation would read somewhat like this: *If women set aside the ambition for beauty, grace and womanliness to distinguish themselves in other things, the matter often ends with it (that) they put on men's clothes and thus troll along.* That plainly does not give English readers or English students of Keller even an approximate idea of what the author intended. Evidently the vocabulary is meager in its renderings of *wenn, Ehrgeiz, hintansetzen* and *dahintrollen. Wenn* is rather "whenever," *Ehrgeiz* "natural desire," and *hintansetzen* "neglect," "disregard," and *dahintrollen* — well, that's Keller's peculiar word, and he has many such, which it is all but impossible to translate — this one certainly is not "troll" in English. But, after all, the proper method to pursue in translation is to express the thought, not to give a bald rendering of individual words. How would this do for an attempt? *Whenever women cease to take pride in beauty, grace, and womanliness, and put themselves forward in other matters the thing often ends by their putting on men's clothes and thus going their unwomanly gait.* Keller seems very simple and very charming, but there is an elusiveness about his style and language that will bring confusion upon the cleverest. How is *säuseln* (p. 2, l. 16) to be rendered? "Whispering"? "rustling"? "fluttering"? That whole paragraph on p. 2 is very difficult. And take the first paragraph on p. 9. Use the vocabulary and the very incorrect note, and the student will not have a glimmer of what Keller was trying to say. In the second sentence the clause *während diese den Hasen längst in der Küche hatten* assuredly does not mean what the note says, *i. e., while the priests had already feathered their nests.* Moreover, *den Kristen gegenüber* cannot be turned into English by the aid of the vocabulary. To get at the idea we must render the sentence somewhat like this: *For the priests made use of the circumstance to show forth a miracle as an offset to that of the Christians, and yet these already had the game securely bagged.*

There is no use of multiplying examples. The notes are as good as useless, and the vocabulary is worse: *Hintansetzen* (p. 1, l. 2), occurs as *hintenansetzen; Sucht*

(p. 1, l. 5), is missing; *sich verlieben in* (p. 3, l. 4), must be got out of *verlieben;* under *gelten* is an idiom which has no connection with the word; *würdig* (p. 3, l. 23) is not rendered, nor *rückwäcts* (p. 2, l. 7), and so on almost without number. The book is very carelessly thrown together.

Der Talisman. Dramatisches Märchen in vier Aufzügen, VON LUDWIG FULDA. Edited with Introduction and Notes by C. WILLIAM PRETTYMAN. Boston: D. C. Heath & Co., 1902.

This *Märchen*, by Fulda, is recommended by the Committee of Twelve of the Modern Language Association, and so the editor brings out this school edition. As in the great majority of such books, there are very many useless notes which any student, advanced enough to read the work intelligibly, can make for himself. The introduction gives a very brief account of Fulda's life and works, too brief by far to be of any use. Fulda is one of the most popular of the present-day German dramatists, but of this the author says nothing, nor why it is so. Then the *Märchen* itself, while it is doubtless based on the theme of Hans Andersen's tale, is a bit of the universal literature which is found all over the earth. Of that the editor says nothing, though he could have found numerous articles on the subject, nor does he say anything of the satirical tendency of the piece, and yet German audiences know that it is full of allusions to the present emperor, his words and ways. The editor did not do well to omit this. Moreover, the sub-title, *Dramatisches Märchen*, suggests a note on the *Mährchen*-drama in modern German literature, such as Grillparzer's, Hauptmann's, and Sudermann's.

Schiller's Lied von der Glocke. Edited by W. A. CHAMBERLIN. Boston: D. C. Heath & Co., 1902.

This edition makes a handy school-book, well printed in that the ten stanzas of the poem proper are set with larger type. The notes and vocabulary seem very good. Of course, after having been edited so repeatedly, we can ask for nothing new.

Unter Brüdern. VON PAUL HEYSE. Edited, with Introduction and Notes, by EMIL KEPPLER. New York, Boston, and Chicago: Silver, Burdett & Co.

A charming comedy by the master, Paul Heyse, which will give classes good practice in colloquial and conversational German. The introduction is a slight bit of work, and with all the translations in the notes we can hardly agree. For instance, p. 3, l. 1: "*precious chum*" as a translation of *teures Mühmchen* leaves out the relationship altogether; p. 4, l. 16, *süssen künste* is rather "*skill with sweets*" or "*goodies*"; '*sweet abilities*" is certainly badly out. For the students, however, the text is the main thing, and in the hands of a good teacher will be very useful.

Der Prozess, by RODERICH BENEDIX, and *Einer muss heiraten*, by A. WILHELMI. Edited by M. B. LAMBERT. New York: American Book Company.

As far as subject or style is concerned, these two comedies are very light affairs. Why cannot the Modern Language Committee find something just as good for colloquial exercise which will have body enough to interest students? Most students find such comedies too silly to really get good out of them. The exercises by the

editor might have been increased in number and made really conversational in form. This could have been done by making a good dialogue between two persons, an exercise will be found very interesting by students and very practical.

Der Bibliothehar. Von GUSTAV VON MOSER. Edited by W. A. COOPER. New York: American Book Co.

This is a delightful farce, full of the spirit of the German language and one that students always enjoy. It is of great value in conversational work in German, as experience has taught. Had the editor added some good, well-planned exercises, he would have increased the value of the edition tenfold.

Das Spielmannskind und der stumme Ratsherr. Von W. H. RIEHL. Edited, with Notes and Vocabulary, by G. M. PRIEST. New York: American Book Co.

Riehl's stories are very interesting and instructive to those more advanced students who take an interest in the past of any country, in its institutions, manners, and social life. Riehl's style is at once charming and difficult, and for that reason great care must be taken with the vocabulary. It would be an improvement in such books if the page and line were noted wherever a word has a peculiar force and needs particular care in translation to convey the author's meaning. Otherwise the edition before us seems to be carefully done.

Minna von Barnhelm. Von G. E. LESSING. Special Edition, with Vocabulary, by SYLVESTER PRIMER. Boston: D. C. Heath & Co., 1902.

In this special edition Professor Primer has cut down his introduction, added twelve plates of Chodowiechi's scenes from *Minna* and for school use has also added a vocabulary. The book in its present form will have the new lease of life it deserves.

L. E. HORNING.

VICTORIA COLLEGE,
The University of Toronto.

The Teaching of Chemistry and Physics in the Secondary School. By ALEXANDER SMITH AND EDWIN H. HALL. New York. Longmans, Green & Co., 1902. $1.50.

THIS book is in two parts. The first part, on chemistry, by Professor Smith, contains 227 pages; the second, by Professor Hall, on physics, contains 144 pages.

The book will be read with great profit by teachers of chemistry and physics. and those copies that fall into the hands of superintendents and principals will be no less effective in promoting the interests of education.

It will be convenient to review the two parts separately.

Professor Smith gives reasons for the study of science, and sketches the history of chemistry teaching. He thinks that the present "average instruction" is far below what it might be and ought to be. He discusses the place for chemistry in the curriculum, the conclusion being that physics should precede chemistry and that chemistry should be placed in the last year of the high-school course. After dealing with the motive of the Committee of Ten for recommending the reverse order, the author suggests that the teacher of physics can easily give the necessary instruction in geometry, and thus the postponement of the work for a whole year may be avoided.

The reader will be pardoned if, as he reads this chapter, he wonders why the same argument will not apply to the teaching of a few physical laws by the chemistry teacher. He may even speculate as to which is easier: to teach chemistry to students who do not know Boyle's law, or to teach physics when they are unable to comprehend the action of an acid on zinc in the simple voltaic cell, and when they know nothing of similar triangles or simultaneous equations.

The choice of introductory material is considered with reference to three possible systems of arrangement: the nature-study method, the theoretical method, and the historico-systematic method. The latter appears to the author to meet the needs of most schools. It is shown that the purpose of the instruction should be to be to develop the powers of observation and reasoning, and to cultivate the right attitude toward scientific investigation, rather than to impart a knowledge of a large number of scientific facts. "Intensive rather than extensive work" is recommended. The arguments against qualitative analysis in the high school seem conclusive, while an excellent substitute for this work is suggested.

The proper place for the atomic theory and for atomic weights is shown and the experimental basis of valency is explained. A chapter is devoted to each of the subjects: "Instruction in the Laboratory," "Instruction in the Class Room;" "Some Constituents of the Course," "The Laboratory, and "The Teacher."

The book is full of suggestive material. Its bibliography is extensive and carefully arranged.

An idea of the spirit of the second part of the work may be obtained from the closing sentence of Professor Hall's prefatory note. He says: "Writing these chapters has interested the author and has improved his teaching. He hopes that reading them may be equally beneficial to others."

The teacher, his qualifications, and his preparation are first discussed; then follows a chapter entitled "The Teacher as a Student." Here the problem of research work for teachers of secondary schools is treated. The author has only commendation and encouragement for those who can carry on such work, but for many he feels that it is impossible, and for such he points out a wide field and an immediate opportunity for original work. He says: "Is there an habitual experiment or an habitual laboratory exercise that goes badly? If so, just there lies the opportunity and the motive for research."

Another chapter is entitled "Discovery, Verification, or Inquiry." This is a thoroughly sane treatment of a subject involving the attitude of the student toward the work in hand. The absurdity of insisting that all information must come through the inductive method is pointed out, and the other extreme, the process of verifying known laws, is discouraged. To quote from the author: "I would keep the pupil just enough in the dark as to the probable outcome of his experiment, just enough in the attitude of discoverer, to leave him unprejudiced in his observations, and then I would insist that his inferences, so far as they profess to be derived from his own seeing, must agree with the record, previously made and unalterable, of these observations."

Professor Hall does not believe in laboratory work without lectures and recitations. He favors some elementary physics in the grammar school on the ground that a majority never enter the high school. The recommendations of the National Educational Association committee receive considerable attention. One chapter is devoted to the presentation of dynamics, and one to the plan and equipment of a

laboratory. The closing chapter, on "Physics Teaching in Other Countries," contains much that is interesting and encouraging. He concludes that the best secondary schools in America have little or nothing to learn concerning the teaching of physics from the corresponding schools in Germany, France and England.

The book in both its parts is worthy of the highest commendation, and its authors are entitled to the gratitude of all who are interested in the progress of science in education.

N. H. WILLIAMS.

THE SHORTRIDGE HIGH SCHOOL,
Indianapolis.

The Newtonian Potential Function. By B. O. PEIRCE. Third revised and enlarged edition. New York: Ginn & Co.

THE principal change made in the third edition is the addition of a large number of miscellaneous problems at the end of the work. These problems are accompanied by occasional indications of solutions and by notes, and contain important results in attractions, electrostatics, magnetism, and current electricity. They constitute a valuable addition.

The book has two divisions, the first consisting of four chapters on gravitation the potential function, surface distributions of attracting matter, Green's theorem, the properties of vectors, and the attraction of ellipsoids; and the second division of one chapter, which is divided into four parts, on electrostatics, electrokinematics, electromagnetism, and current induction. The exposition of the equation of Laplace, the theorems of Green, Gauss, and Stokes, and Dirichlet's principle, is accompanied by much illustration, and the treatment is given an elementary character by copious and careful explanations. The elements of the mathematical theory of electricity in the second division are quite complete, but are not based on general dynamical principles, as, following Maxwell and Helmholtz, is done by Webster and other writers, giving a more advanced treatment. No use is made of the method of variations or of generalized co-ordinates in deriving the equations which relate to dielectrics or to electromagnetic induction. The generalized equations of Poisson are introduced as giving the result of experiment on dielectrics. In some places the two-fluid theory of electricity is used as a convenient physical analogy.

The first chapter contains the statement of the law of gravitation and the determination of the attraction exerted by bodies of various forms. The interesting problem of the variation of latitude due to a hemispherical hill is treated. The second chapter defines the potential function due to attracting matter and determines it in particular cases. The question of the continuity of first and second derivatives of the potential function is discussed. The equations of Laplace and Poisson and the theorem of Gauss are derived. The third chapter is devoted to the potential function in the case of repelling forces. The fourth chapter gives a treatment of surface distributions, of Green's theorem, of Dirichlet's principle, and of the attraction of homogeneous ellipsoids.

The fifth chapter, which comprises more than one-half of the book, exclusive of the problems, applies the results of the first four chapters to electricity. The properties of electric distributions and of tubes of force are given, as well as the important facts about condensers, the energy of charged conductors, specific inductive capacity,

and polarized distributions of attracting matter. Steady currents, the law of Ohm, and the electromagnetic field due to linear currents, solenoids, and ring magnets comprise the matter of Parts II and III. In Part IV the laws of electromagnetic induction are developed. The results of periodic electromotive force with application to the alternate current transformer constitute an important practical application. The general equations of the electromagnetic field form the concluding subject of the book.

It is not possible to mention by any means all the topics treated in this work. It forms a good introduction to the more advanced works on electricity and magnetism. Although written to accompany university lectures, it is to be highly recommended for private study.

J. H. McDONALD.

THE UNIVERSITY OF CALIFORNIA

An Introduction to the Industrial and Social History of England. By EDWARD P. CHEYNEY. Pp. x+317. New York: The Macmillan Co., Price, $1.40.

THIS volume is characterized in the preface as a text-book for college and high-school classes. It certainly meets their requirements in a uniquely satisfactory degree. But it is to be regretted that the author's modesty led him thus to underemphasize, on the threshold, the original work embodied so freely in the text.

Chap. 2 of the book is devoted to "Rural Life and Organization, 1250–1350;" chap. 3 to "Town Life and Organization," and chap. 4 to "Mediæval Trade and Commerce," for the same century. These three chapters are the foundation of the book. The six succeeding chapters exhibit, in chronological, clear-cut and learnable periods, the subsequent economic and social development of England, and conclude with a discussion of "Trade Unions, Trusts, and Co-operation." To each chapter is appended a critical bibliography.

Chap. 1 sketches admirably the national history up to 1350, and the introductory sections of chaps. 5–9, inclusive, are likewise devoted to national affairs. It is, of course, difficult to determine what to do with "political" history in a work of this kind; but it would seem preferable, all considered, heroically to take it for granted. There can be little doubt that a scheme which involves for example the presentation of the history of Europe, 1789–1815, in one page (200) is vulnerable. The forty-odd pages given over to "correlating matters of economic and social history with other aspects of the life of the nation" (preface) could be employed to better advantage.

For, in these days of interest in origins it is a trifle awkward to turn one's back on matters industrial prior to 1250. Conceding that the material for this earlier period is not satisfactory, still something considerable can be done, and it should be done to round out this valuable study.

The book is well balanced and even in quality, with the exception of chap. 2, which fails to present a living picture of the agricultural life of the time. The apparently undue length of the chapter on the "Black Death and Peasants' Rebellion" may be excused because of the light it sheds on a difficult period.

Naturally some errors are to be discovered. Thus, in the discussion of the Navigation Acts, it is stated that the acts of 1651 and 1660 forbade all importation of goods into England "from any ports of Asia, Africa, or America, except in vessels belonging to English owners, built in England and manned by English seamen" (p. 192). A

perusal of the act of 1660 shows that colonial ships could participate in the trade and that foreign-built ships could become English. Furthermore, the explanatory act of 1662 makes it clear that under the acts a colonial seaman was regarded as English. Some lesser slips could be pointed out — for example, the date of the treaty of Bretigny (p. 97), the fate of the Armada (p. 141), the Christian name and place of origin of the inventor Cartwright (p. 210) — but such flaws may be easily amended.

It remains abundantly manifest that Professor Cheyney has placed students of industrial and social England under obligations by reason of his clear, orderly and comprehensive presentation of a difficult subject; and his book deserves to be read far beyond the high-school and college circles to which it is dedicated, and to which it is so well-adapted.

G. C. SELLERY.

THE UNIVERSITY OF WISCONSIN.

Introduction to Zoölogy. By CHARLES BENEDICT DAVENPORT AND GERTRUDE CROTTY DAVENPORT. Pp. xii + 412. New York: The Macmillan Co.

IN this book we have a very interesting departure from the later text-books in zoölogy for secondary schools. It makes a swing of the pendulum away from the technical laboratory course and in the direction of the broader more widely informational natural-history work of a generation ago. There is, however, an admirable, though somewhat brief, outline for laboratory work, which may be used if the equipment and general condition of the school make it possible. The book consists of twenty chapters dealing with different subdivisions of the animal kingdom and a chapter on embryology, based upon the development of the frog and their appendices; the first containing the outlme for laboratory work; the second, a valuable bibliography of nearly 150 titles; while the third is a synopsis of the animal kingdom.

The book is based upon sound pedagogics. Each of the first twenty chapters treats of some generally well-known animal form and its allies; as, for instance, chap. 1, "The Grasshopper and Its Allies;" chap. 7, "The Crayfish and Its Allies;" chap. 16, "The Smelt and Its Allies." In every case the process is from the known to the related unknown, and in this respect is in commendable contrast to much which has been put into the hands of the pupils. The order of chapters is probably as suggestive as any arrangement could be for general purpose, yet one which need not be followed by the teacher if the availability of material make it seem best to alter it. This, it seems to me, is one of the strong points of the book. Its general process from the known to the unknown makes it impossible to proceed in the systematic order from the lowest to the highest animal forms, and, since that is the case, within certain limitations, the sequence of work may be made to conform to the seasons. From the standpoint of the book's make-up, the volume is a masterpiece both as to printing and binding — a matter of no little importance in a text-book — and, with a few exceptions, in the matter of illustration. In the latter feature, photographs are more fully made use of than in other books of a similar nature with which I am acquainted. This is more in the right direction, though in some cases the technique of their production in this book is not all that could be desired. It is not perhaps an easy thing to photograph successfully the peculiar animal forms, but I think it unquestionable that with a better use of light and shade the pictures would mean much more to the pupils.

On the whole, the book is one to be highly commended. A teacher with only a laboratory knowledge of this subject would not choose it, and, if it be an educational aim to make comparative anatomists out of our secondary school pupils, it is not the book to use. If, however, we wish to acquaint them with the members of the animal kingdom, especially in their relation to men, it is a valuable text-book. It is perhaps a little abrupt. An introductory chapter might well be inserted. With a good teacher to make up the possible deficiency, the book leaves little to be desired.

E. G. DEXTER.

THE UNIVERSITY OF ILLINOIS.

Handbook on Linear Perspective Shadows and Reflections. By OTTO FUCHS. Boston: Ginn & Co., 1902. Pp. 34+13 double-page plates.

SELDOM, if ever, does the author of a book on drawing succeed more fully in accomplishing his purpose than has Professor Fuchs in this handbook. He aimed to produce a clear and comprehensive, yet concise, treatise on perspective drawing for the use of students of art and architecture, and he has done it. It is not overloaded with intricate problems, neither is it lacking in problems involving vital principles. Those given are well selected for the purpose of illustrating principles and they lead directly to practical results. The plates are well-made and clear; they are printed on sheets of thin paper and conveniently held in a portfolio in the back of the book.

CHAS. A. BENNETT.

BRADLEY POLYTECHNIC INSTITUTE,
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BOOKS RECEIVED.

[The notice here given does not preclude the publishing of a comprehensive review of any of these books.]

Chaucer's Prologue, Knight's Tale, The Nun's Priest's Tale. Edited by Andrew Ingraham. Size, 5¾ × ¼4. Pp. 325. Price, 25 cents. New York: The Macmillan Co.

Discriminating notes and explanations are characteristic of this addition to the handy series of school classics issued by this firm.

Bayard's Courier. By B. K. Benson. Size, 7¾ × 5½. Pp. 402. Price, $1.50. New York: The Macmillan Co.

This is well described as a story of love and adventure in the cavalry campaign of the Civil War. It resembles much the former work of the same author, *A Friend With the Countersign.*

The Book of Nature Myths. By Florence Holbrook. Size, 7½ × 5. Pp. 215. Price, $0.45. Boston: Houghton, Mifflin & Co.

This is intended to follow the *Hiawatha Primer* and consists of stories "adapted to youthful minds." To one who believes in the teaching of myths this will be a very useful book.

American Literature in the Colonial and National Periods. By Lorenzo Sears. Size, 8½ × 6. Pp. xiv + 480. Price, $1.50. Boston: Little, Brown & Co.

Writing in a delightfully entertaining manner of a subject that has an interest for everyone, Mr. Sears has made us his debtors. The ponderous paragraph and the too acute literary criticism are but little in evidence, and the reader is carried along without much effort on his part. As might perhaps be expected from his domicile, Mr. Sears sees but little in our country in literature except that produced in New England and perhaps in the South.

Tennyson. By Sir Alfred Lyall. Size, 7½ × 5. Pp. 200. Price, $1.00. New York: The Macmillan Co.

This is the sort of literature that ought to be included in the "history of literature" in the high school. In nothing is it too much.

Northern Hero Legends. By Otto L. Jiriczek. Translated by M. Bentinck Smith. Size, 6 × 4. Pp. 146. Price, $0 40. New York: The Macmillan Co.

This has been a wonderfully successful series, and the translation here of Jiriczek's *Deutsche Heldensage* adds to the usefulness as well as to the interest. Students of old English will welcome this.

Macbeth. Edited by Edward Everett Hale, Jr. Size, 7 × 5. Pp. xxv + 89. Price, $0.12½. New York: University Publishing Co.

The Splendid Idle Forties. By Gertrude Atherton. Size, 8 × 5½. Pp. 389. Price, $1.50. New York: The Macmillan Co.

The thirteen stories making up this volume are of old California, full of romance and spirit. This is an agreeable change from New England and Virginia.

The Teaching of English. By Percival Chubb. Size, 8 × 5½. Pp. xvii + 412. Price, $1.25. New York: The Macmillan Co.

This is the fourth volume in the Teacher's Professional Library. It will be reviewed at length.

The English Language. By Frederick Manley, and W. N. Hailmann. Size, 7½ × 5. Pp. xvi + 414. Boston: C. C. Birchard & Co.

In this book stress is placed upon the "stimulation and liberation of thought and feeling rather than upon certain borrowed technicalities of speech." The first part is devoted to the logical and rhetorical structure of English speech, and avoids grammatical technicalities as much as possible. It is suitable for grammar grades.

Select Poems of Samuel Taylor Coleridge. Arranged by Andrew J. George. Size, 6¼ × 4¾. Pp. xlvi + 410. Price, $0.75. Boston: D. C. Heath & Co.

In compact form, well bound, and well edited by a man who in his teaching has always shown a high appreciation of the beautiful and a discriminating judgment, this edition of Coleridge is to be commended. The notes are historical and suggestive, both of which are necessary, and they do not err in giving too much help to the

student, in explaining things for him and thus leaving only to him to decide whether or not he agrees with the editor.

Colonial Children. Selected and annotated by Albert Bushnell Hart, with the collaboration of Blanche E. Hazard. Size, 7½ × 5½. Pp. 233. Price, $0.40. New York: The Macmillan Co.

This is one of the most ambitious of our supplementary readers. It must have been a more difficult task to adapt the literature of long ago both in form and in content so as to enlist the interest of children of today than to write new stories. The excellence with which this has been done is a testimony to the ability of the editors. The publishers have aided the work in no little measure by the attractive old time form of type and illustrations.

Camps and Firesides of the Revolution. By A. B. Hart and Mabel Hill. Size, 7½×5½. Pp. 309. Price, $0.50. New York: The Macmillan Co.

This volume sustains the good impression made by the first and is, perhaps. more interesting, as there is more action in it. The selections of poetry give additional interest. The illustrations are well done.

How Our Grandfathers Lived. By A. B. Hart and Annie Bliss Chapman. Size, 7½×5½. Pp. xiv×371. Price, $0.60. New York: Macmillan Co.

This volume relates chiefly to the first half of the nineteenth century. The selections, as in the other volumes, are well made; especially interesting are the pictures of school and college life in these early years. The judicious selections of land battles in the War of 1812 show that the author's idea is that young people should never know of reverses.

The Story of a Living Temple. By Frederick M. Rossiter and Mary H. Rossiter. Size, 7½ × 5. Pp. xii + 347. Price, $1.

The object of this book is to arouse a deeper interest in the study of the human body. The method is indicated by the title and is a revolt from the uninteresting method of teaching facts in regard to physiology, now too prevalent in our schools.

Laboratory Exercises in Physics — for Secondary Schools. By Geo. R. Twiss. Pp. xiii + 193. Price, $0.80. New York: The Macmillan Co.

Will be reviewed next month.

Der dreissigjährige Krieg. Drittes Buch. Edited by C. W. Prettyman. Size, 6½ × 4½. Pp. 170. Price, ——. Boston: D. C. Heath & Co.

Hours With German Classics. By Frederic H. Hedge. New edition. Size, 8 × 5. Pp. 131. Price, $2. Boston: Little, Brown & Co.

The aim of the sketches in this book is to exhibit some of the characteristic phases of German literature. This is done by a critical examination of some of the best-known writers.

An Elementary German Reader. By Frederick Lutz. Size, 7½ × 5. Pp. ix + 329. Price, $1. Boston: Silver Burdett & Co.

This book contains what might reasonably occupy a year's work in German in the high school. It has infinite variety in the subjects treated — all the way from fairy-tales to forms of social correspondence. An extensive vocabulary is added.

Biblische Geschichten. Edited by Lewis A. Rhoades. Size, 6½ × 4½. Pp. iv + 93. Price, $0.30. New York: Henry Holt & Co.

These Old Testament stories are simple and direct, and perfectly intelligible to children. This ought to be a popular book for the beginning class in German.

The Reverend Doctor Ryerson as a Public Man and an Educationist. By John George Hodgins. Size, 8½ × 5½, paper. Pp. 23. Price, $0.25. Toronto: William Briggs.

Egerton Ryerson was really the founder of the educational system of the province of Ontario, a system known throughout America as an example of what centralization will accomplish. It is doubtless true that Dr. Ryerson would not have stood for all that has been done since his time, but he laid the foundations broad and deep, and each stone can be justified. His labors would have been remembered with but a hazy indefiniteness, had not his co-laborer, Dr. Hodgins, written an appreciative sketch and preserved in permanent form the records of the early legislation in Upper Canada. This pamphlet gathers in a small space the salient points of his administration of educational affairs.

Stories in Stone from the Roman Forum. By Isabel Lovell. Size, 7½ × 5½. Pp. 258. New York: The Macmillan Co.

The authoress says that the "how" belongs to the archæologist, but the "why" is for this book — why the Forum became the center of the nation's life, why the Romans wore white togas, why the public treasury was under Saturn's charge, etc., etc. This is a specially valuable book for the teacher of Latin. Here is an opportunity of developing a living interest in the study of the Latin language by a study of the life of the people who used it.

Interest and Education. By Charles de Garmo. Size, 7¼ × 5½. Pp. xi + 229. Price, $1. New York: The Macmillan Co.

The Making of Citizens: A Study in Comparative Education. By R. G. Hughes. Size, 7½ × 5. Pp. viii + 405. Price, $1.50. New York: Imported by Charles Schribner's Sons.

This is a mine of information upon the school systems of England, France, Germany, and the United States. It represents a great amount of labor, and the facts thus collected ought to be of great service to those who are interested in education. As the author says, the book is written primarily for general readers, but it will be of almost as great value to the student of education, as here are gathered positive facts in regard to education from many sources.

Atlas of the Geography and History of the Ancient World. By John King Lord. Size, 12 × 8. Pp. 43. Boston: B. J. Sanborn & Co.

This ought to be a very useful adjunct to the teaching of ancient history, and of Latin and Greek. The political and historical geography is too often neglected. We forget that most of our students are visualizers, and the constant use of the map and of the blackboard is necessary to accurate comprehension.

Various Views. By William Minton Payne. Size, 7 × 4½. Pp. 280. Chicago: A. C. McClurg & Co.

In very attractive form Mr. Payne has reprinted the leaders that he contributes to the *Dial*. This is the third volume of the series, "Little Leaders"—"Editorial Echoes" having preceded it. This is a very satisfactory way of preserving the good things that are otherwise lost in the mass of our periodical literature.

Recollections of Half a Century. By Colonel Alexander K. McClure. Pp. vii + 502. Salem, Mass.: The Salem Press Co.

This is history for the busy man — for the man of affairs who wishes not dry facts nor deep philosophic thought, but action expressed in personal terms. The busy life of this nation during the past fifty eventful years is depicted here — statesmen, presidents, railways, politics, the Civil War, relations of the North and South, and kindred topics.

The Cambridge Modern History. Planned by the late Lord Acton. Edited by A. W. Ward, G. W. Prothero, Stanley Leathes. Vol. I: The Renaissance. Pp. xxx + 807. Price, $3.75. New York: The Macmillan Co.

This certainly is deserving of being classed as an epoch-making book in the domain of history. This is the first of twelve volumes in which is to be treated the general history of Europe and of her colonies since the fifteenth century. Each of these volumes will have for its central thought some great historical fact of special importance; hence the first is called the Renaissance. This will be followed by the Reformation, the United States of America, the French Revolution, Napoleon, etc.; and so the succession is given a unity that is not merely one of name. The value of such a work to the student of history, social, economic, political, and educational, will be very great, as he sees here the opinions of specialists in the various phases of historical development placed in close relationship to one another, and so he can better appreciate the full significance of the great movements.

Lessons on Practical Subjects. By Sarah Forbes Hughes and Catherine W. Fancon. Size, 7 × 4¾. Pp. 174. Price, ——. New York: Hinds & Noble.

This book answers a variety of questions which arise in the municipal, state, and federal campaigns, and in regard to which the people are lamentably unfamiliar. What are corporations, strikes, taxes, greenbacks, United States bonds, paper money, free silver, etc., are treated in a simple manner, and the book ought to be useful in connection with the teaching of civics.

The Territorial Growth of the United States. By W. A. Mowry. Size, 7½ × 5½. Pp. 242. Price, $1.50. Boston: Silver, Burdett & Co.

The various territorial acquisitions from the settlement of the original thirteen states to the annexation of the Philippine Islands are treated consecutively and illustrated by thirteen maps. Tables showing population, territory, products, etc., are also given.

The Struggle for a Continent. Edited from the writings of Francis Parkman by Pelham Edgar. Size, 8 × 6. Pp. xiv. + 542. Price, $1.50. Boston: Little, Brown & Co.

Just think of editing Parkman! It seems incredible and impossible, but it has been done successfully in this volume. This is a book which ought to be in every high school. More fascinating, more romantic, and nearer the lives of boys and girls in this country is such a book than all the mediæval history now being forced into unwilling minds. Mr. Edgar is to be congratulated on having made so interesting and complete a book.

Rote Song Book. By F. H. Ripley and Thomas Tapper. Size, 7½ × 6½. Pp. 144. Price, $0.45. Chicago: The American Book Co.

This is intended to cultivate a perception of tone relation, to arouse the æsthetic nature, and to develop the artistic sense of the child through song and verse.

Masterpieces of Greek Literature. By John Henry Wright and Clara Hitchcock Seymour. Size, 8 × 5. Pp. xxi + 456. Price, ——. Boston: Houghton, Mifflin & Co.

There is a distinct place for just such a collection as is here presented. The translations, scattered over many books unattainable or unknown, drive too many persons to Bohn or Kelly, and the result is not a desirable one. Professor Wright has written the introduction in his happiest mood, and any sin of omission in the compilation of the book is not apparent.

High School Algebra. By M. A. Bailey. Size, 7 × 5½. Pp. 297. Price, $0.90. Chicago: The American Book Co.

For high schools and academies.

Mental Arithmetic. By I. C. McNeill. Size, 5½ × 4. Pp. 141. Price, $0.35. Chicago: The American Book Co.

For grammar grades or for review work in the high school.

Elementary Studies in Insect Life. By Samuel J. Hunter. Size, 8 × 5½. Pp. xviii + 344. Price, $1.25. Topeka, Kan.: Crane & Co.

The aim of this book is to induce the student to become acquainted, through personal observation in the field and laboratory, with some of the important biological problems as presented by insects. The illustrations have received special consideration.

Beaumont and Monod's Mediæval Europe. Translated by Mary Sloan. Size, 5×7½. Pp. 556. Price, $1.60. New York: Henry Holt & Co.

This is a notable addition to our selection of histories of mediæval times.

Universal History. By Robert H. Lakkerton. Size, 8×11. Pp. 221. Price, $2.40. Chicago: Silver, Burdett & Co.

In this age of specialization is there a place for a universal history? In this age of haste and lack of leisure where can one find the time to specialize? And so we may argue as we look out upon the world from our particular part of the world's life. This book ought to find a place and be a factor in education, combining as it does the features of an atlas with the information features of a history.

The Feudal Régime. By Charles Seignobos. Translated by Earle W. Dow, University of Michigan. Size, 6×9. Pp. 70. Price, 50 cents. New York: Henry Holt & Co.

This is a useful short description of the social organization prevailing in Europe especially from the tenth to the thirteenth century. It ought to find a place among the supplementary reading in classes in history in our high schools.

The Story of the Amphibians and the Reptiles. By J. N. Baskett and R. L. Ditmars. Size, 5×7. Pp. 217. Price,——. New York: D. Appleton & Co.

This book contains the kind of nature study that we ought to have in our grammar grades. It is an interesting introduction to the study of zoölogy that will come in the high-school grades.

Elementary Geography. By H. Justin Roddy. Size, 8×10. Pp. 128. Price, 50 cents. Chicago: American Book Co.

In this book the physiographic element is not made too prominent, because the author thinks that few common-school teachers possess the special training required for such work. In the text the aim is to present the essentials of the subject with as little detail as possible, and in such language as will be readily understood by the ordinary child.

Complete Geography. By H. Justin Roddy. Size, 10×14. Pp. 144. Price, $1.00. Chicago: American Book Co.

This is the advanced book of the series of which the aim is to meet the demands of teachers who find it impossible to expand the study of this subject so far into the causes of present geographical conditions as to call for scientific attainments on the part of children. It is profusely illustrated, but many of the illustrations are poorly executed. Opening at random, it is interesting to one who has just returned from riding over the boundless prairies of the Canadian Northwest, with the fields of wheat and oats stretching for miles, to read that these territories are most important for their furs, forests, and minerals.

A Complete Geography. By R. S. Tarr, Cornell University, and Frank M. McMurry, Columbia University. Size, 6½×8½. Pp. 478. Price, $1.00. New York: The Macmillan Co.

This is the complete geography in the two-book series. One has some difficulty in following closely the many adaptations of this series. A good feature of this geography is the arrangement by which the discussion of seasonal changes, winds etc., is postponed until the children have had a study of the country as a country. There is a danger that in our desire to escape from the society of the old-fashioned geographers we may go too far, and become so enamored of the physiographers that the harm will not be less.

An Elementary Commercial Geography. By Cyrus C. Adams. Size, 5½×7½. Pp. 351. Price, $1.10. New York: D. Appleton & Co.

The aim of the author is to give, simply and broadly, a view of the world in its relation to man as a producer and a trader. The improvements in transportation, the application of steam power to manifold forms of machinery, and the process in chemical science are given special emphasis. It is intended for the grammar grades.

Stories of Charlemagne and the Twelve Peers of France. By Rev. A. J. Church. Size, 5½×8. Pp. 374. Price, $1.75. New York: The Macmillan Co.

This is the Charlemagne of romance, and the tales are told in Mr. Church's usual felicitous style. The book is richly illustrated and is suitable for a holiday present to a boy in the grammar grades.

From the Old World to the New. By Marguerite S. Dickson. Size, 6×7½. Pp. 197. Price, 50 cents. New York: The Macmillan Co.

The aim of this book is to place before the children in the earlier grammar grades a simple connected account of the discovery and settlement of America.

From the Land of Stories. Translated by P. P. Claxton. Size, 5½×7. Pp. 92. Price, ——. Richmond: B. F. Johnson.

This book of stories "is intended for children of the first and second reader grades." Nearly all the stories are translations from the German.

Strange Lands Near Home. Youth's Companion Series. Size, 5×7. Pp. 144. Price, 25 cents. Boston: Ginn & Co.

The fact that this book belongs to the Youth's Companion Series stamps it as being accurate in information and interesting in form.

A Manual of Civics for New York Schools. By C. W. Bardeen. Size, 5×7½. Pp. 699. Price, $1.00. Syracuse: C. W. Bardeen.

Nothing written by Mr. Bardeen could be dry — not even civics. And this book is not dry because the author is interested in his subject, and one cannot but feel that it was written by an interested individual, and not by a collating machine. It is New York all the way, and might appropriately be called "What's What" for that state.

Money and Banking. Revised. By Horace White. Size, 5½×7½. Pp. 474. Price, $1.50. Boston: Ginn & Co.

This is a revised edition brought down to 1902. It has been rewritten that it might be more usable in the class-room, as its first publication was not intended for schools. Such a book ought to be in every high-school library.

The Woman's Manual of Law. By Mary A. Greene. Size, 5×7½. Pp. 284. Price, $1.50. Chicago: Silver, Burdett & Co.

This book is the result of years of experience as lecturer upon the subject of which it treats. Much space is given to the law of domestic relations, and if we believe that school is a preparation for life certainly this book ought to be included in "Civics" for girls.

Government, Its Origin, Growth and Form in the United States. By Robert Lansing and Gary M. Jones. Size, 5×7½. Pp. 204. Price, ——. Chicago: Silver, Burdett & Co.

This book treats first of the Federal government and afterwards of local institutions. The proper setting of the Federal government is obtained by an interesting description of the origin of government and the evolution of the particular system under which we live.

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